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Practical Goat-Keeping

MRS. ARTHUR ABBEY

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by

MRS. ARTHUR ABBEY

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PREFACE

In writing this book I am endeavouring to help the novice to get good results from goat-keeping and to enable him or her to give the animals a reasonably happy and well-cared-for existence.

Nothing is further from my wishes than to persuade anybody to "take up" goats with the idea that they can exist on next to nothing, and unless one is prepared to give them good food and attention one is doomed to disappointment, and the poor goat to a very unhappy life.

I know of no other animal belonging to the category of "householder's stock" that rewards one so well in return for kindness and considerate treatment, and if this book of mine does anything to bring some additional comfort to even one goat it has been worth while writing it and I shall feel rewarded.

Beryl S. P. Abbey.

Downe Hall,
Roydon,
Essex.

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CHAPTER I

BREEDS

THERE are many different breeds of goats, but it is my intention to mention only those that are likely to be obtainable in the British Isles and for which there is a section in the British Goat Society's Herd Book.

The Anglo-Nubian. This is said to have originated from crossing the Nubian and English goats many years ago, but, be this as it may, there is now no sign whatever of the English parentage left in them. The Anglo-Nubian goat is usually a big animal with a fine skin and glossy coat, with very long pendulous ears and a definite Roman nose; it is, in fact, best described as "camel-headed". There is a tendency for the jaws to be undershot when the type is very definite, but when this is so pronounced as to cause protrusion of the teeth it should be considered a fault, as it prevents the front teeth in the lower jaw from closing on to the hard pad of the upper jaw, and thereby tends to make the biting of grass and twigs difficult, but if the animals are entirely stall-fed it makes very little difference to them.

The Anglo-Nubian may be any colour; in fact it shows remarkable variation in this particular. There are numerous whole colours, and also specimens of beautiful

marbled and spotted colourings in fawns, blacks, and greys, and this, in conjunction with their Eastern look, greatly adds to their bizarre appearance and is most attractive.

Their milk yield is not so heavy as that of the Swiss breeds, but their butter-fat percentage is decidedly higher; in fact, they are the "Jersey cows of the goat world".

The Toggenburg. This is a Swiss breed which originated in the valley of Toggenburg, from which it takes its name. It is on the small side as a rule, and often inclined to carry a good deal of rather long hair. The colouring varies from deep chocolate to pale drab, and, in England, the drab colouring (resembling weak cocoa and milk) is usually preferred and considered the most typical of the breed; it is certainly a very soft and pretty colour and most unusual amongst animals. There are white or light fawn markings down each side of the face and from the knees or hocks to the feet, and a rather wide strip of white round about the tail and rump which spreads towards the thighs. Although the standard permits fawn markings, they are not liked by either judges or breeders. The ears are small and pricked. In temperament the breed appears to be very gentle and quiet, seldom using its voice.

These goats are not very heavy milkers, but are very consistent in their yields and excel in long lactation. Their butter-fat percentage is not high.

The Saanen. This is another Swiss breed which was imported into England many years ago, but I believe

had practically died out in its pure state until the importation of 1922 which was carried out by officials of the British Goat Society. In colouring they are white, but, from my experience of the breed, I should say they are, or were, definitely of two types, one with very fine short hair, more resembling fur, with a tendency to stand up slightly, and the other with coarser and longer hair, which lies so flat that it gives one the impression of being short, until handled.

These goats, like the Toggenburg, are on the small side, and are very affectionate and nice to work with. They are also a very suitable breed for goat-keepers with limited space, being placid and phlegmatic and content to graze where other breeds would want to browse.

In the hands of British breeders they are improving in every respect and in the making of the British Saanen their value has been incalculable.

There are many heavy milkers in this breed and in their length of lactation they are undoubtedly second to none.

Their butter-fats are about the average.

British Toggenburg. This breed I should describe as an improved version of the Swiss Toggenburg. It was developed from British goats of Toggenburg colouring, including, as a rule, some blood of the Swiss Toggenburg, and it is now recognized as a definite breed. It is a larger and finer-coated animal than the Toggenburg, but the colouring is identical. It is a good milker, and in recent years there have been some outstanding animals of this breed.

British Saanen. As with the British Toggenburgs, so it is with British Saanens; they are a great improvement on the breed from which they took the latter half of their name.

This breed can undoubtedly claim to be very heavy milkers, with splendid length of lactation.

They are usually decidedly on the big side and heavily built, but unfortunately a great many of them fail in their hind-quarters, being too narrow and their legs badly placed, thus causing their hocks to turn inwards.

The British Alpine. This is another goat that has been "made in England", but, unlike the two previously mentioned, it has no foreign prototype. It is black in colouring with the same white or pale fawn markings as the Toggenburg, usually referred to as "Swiss markings". In this breed, too, fawn markings, though permissible, are looked on with disfavour, and they certainly detract from the smart appearance. A good-coloured animal of intense black with clear, pure white markings is very hard to beat.

The British Alpine is a big animal with very fine skin and coat, and the contrasting colours of its markings make it both smart and striking in appearance. The breed includes many heavy milkers in its number and its butter-fat percentage is in the same category as the majority of other British-bred goats. It is very placid and silent, but seems to need more exercise than some of the other breeds.

British. These goats can be any colour, but they are usually of Swiss type and often have white markings on

the body, but nevertheless their size, build, and general conformation are frequently so good as to make them very attractive in appearance. As milkers they are excellent, both in quality and quantity of milk yield, and many of the highest-recorded yields have been produced by them.

English. This is a small, short-legged, thick-set goat, said to be indigenous to England. It occurs in varying shades of fawns, greys, and browns, and has a short but thick coat and is practically always horned; in fact, I am told by breeders of these animals that they do not like hornless ones. Its milking qualities have not been developed as in the other breeds.

CHAPTER II

HOUSING

In many cases the accommodation for the goats has to be a converted stable or outhouse of some sort, so that it is not possible to have the ideal measurements or things just as one would like them. If the goat-house is to be built for the purpose, it should face south or south-west. On no account must it face north. I strongly advise the use of loose-boxes in preference to stalls. For many years I have had my milkers in boxes 5 ft. square and I find this size splendid for them. It gives them plenty of room and allows space for a hay-rack, food pail, and water pail without any cramping, and also provides sufficient accommodation for attention to the animals in cases of kidding or illness. When no outhouse is available, very good results can be got by buying a sectional house made by one of the reputable poultry-house builders. The house needs to be made of stronger wood than for poultry, but this the manufacturers could probably manage at a little extra cost, and if I had to build goat-houses they are unquestionably the people I should employ, as it is cheaper than having a goat-house built of wood on the site. Of course, if one could have exactly what one wanted, regardless of cost, brick no doubt would be used, but the price is too high for the average person.

A sectional house should be fitted on to a concrete floor with an extra six inches or so all round the outside.

The building should be planned so that the boxes can be arranged opposite each other with a 4 ft. passage down the middle. If space is limited, I would prefer to have the boxes a little smaller rather than reduce the passage room, as anything under this width is too narrow to work in with comfort, especially if using a barrow.

The boxes should be made of wood up to 2 ft. and above this iron rails should be fixed into the wood to the height of a further 18 in., with a top rail of wood to keep the iron rails in place. This is lower than I previously advised, but recent experience has taught me that the measurements now recommended are quite sufficient to control any goat, and economy of material is effected. Feeding can be done over the top without opening the door and the hay-racks are very easy to fill. The front of the box should be divided into two parts, the fixed part measuring half the width, and to this should be attached a hay-rack, 2 ft. wide by 18 in. deep and 12 in. across the top, with rails 2 in. apart.

The remaining portion will be the door, and fitted on to the inside of this by a pair of bolts should be an iron ring 9 in. in diameter, into which the food pail will fit, so that when feeding round the attendant does not need to enter the box as the pail is within easy reach. The hay-rack is also filled from the gangway. The water pails can be fastened to the wall on the opposite side to the hay-rack, or they can be placed on the floor just inside the door.

Where several goats are kept, I recommend the use

of a small, light iron barrow for feeding purposes. It is so easy just to place a small bath of food in this and wheel it around; when not needed for corn meals it comes in very handy to lay the truss of hay on and to feed from that. Better still is a kind of truck made by building a platform with low sides on to the chassis of an old pram. This is ideal for hay, as any leafage that falls off the truss is caught and can then be used for other animals or scalded and mixed in the poultry mash. Another advantage is that one can just "nudge" it along if one's hands are full, instead of having to lift up the handles as in the case of a wheelbarrow. It is a great saving in labour and effort.

Flooring. This is not easy to decide upon, as few of us can afford to have the ideal flooring, which is probably one of cork bricks, therefore the majority will use the cheapest material, which is concrete. This is unfortunately very cold for milkers and is said to be a frequent cause of udder troubles, but it is quite reasonably satisfactory if plenty of clean, dry litter is provided.

Many goat-keepers put slat floors on top of the concrete, these being made on quartering about 4 in. or so in depth with the slats 1½ in. apart, but I do not like these. They make a lot of extra work and heavy lifting, and they need to be thoroughly scrubbed with disinfectant quite frequently, otherwise they smell strongly, and, furthermore, I believe them to be more detrimental to the goats' udders than the concrete, inasmuch as the bedding often gets worked to one side, and parts of the goats' udders, and possibly teats, are pressed through the slats, so that when they rise there is a definite indentation to show where the

weight has been resting. If the goat should have a very large full udder and leans her hock on it as she gets up, she is very apt to damage its tender inside lining, causing marks like large blisters to develop and show externally.

Drainage. Only a very slight slope is necessary if plenty of litter is used, but what slope there is should run towards the gangway, where a small gutter, about 2 in. deep and 4 in. in width, should run along just outside the boxes. It will be seldom that anything drains into the gutter. It is a mistake to have a deep gutter, as it makes it difficult to sweep out.

Light. There should be as many windows as can be conveniently arranged for, and in summer these can be sprayed with lime-wash or green distemper to keep the goat-house cool, as it has presumably been planned to get all the available sun during the winter months, and may for that reason be rather excessively hot in summer.

Stalls for Milkers. Where there is not sufficient space for loose-boxes, stalls must be provided for the milkers, as it is not advisable to allow them to run loose together for fear of the masterful ones bullying their weaker companions, and, added to this, to be really efficient and economical, it is necessary to feed each individual goat according to her milk yield. Stalls should be divided by solid partitions, 4 ft. high in front, gradually sloping towards the back, so that at this end they measure about 2 ft. 6 in. The length should be 4 ft., and the width 2 ft. to 2 ft. 6 in. The stalls may need to be a little narrower for small goats, as the animals must not be able to turn round. In front of the stalls there should be a hay-rack running the whole width of the stall, about 15 in. deep

and 12 in. wide at the top, and the slats, or rails, of which the front of the hay-rack is constructed, should be 1½ in. apart.

On the left-hand side of the stall should be placed the fastening for tying up the goat. This can best be done by using a screw bolt, about 20 in. long, dropped into two screw eyes, and on to the upright bolt should be placed a ring to run up and down, the bottom of the upright bar (or bolt) being fixed 6 in. from the ground. To this the goat is tied by either a short length of chain or a short cord with a spring hook on the end to fasten on to her collar.

Under the hay-rack should be the feeding pail. This can either be fitted into a ring, as advised for the loose-boxes, or a narrow board can be fixed from side to side of the stall across the front, and a round hole cut out of it into which the pail is dropped. Both of these methods have the disadvantage that bits of hay fall into the feeding pail, but I fail to see how this can be avoided.

Water cannot be left in the stalls, so that it will be necessary to offer it to the goats three times daily.

Where stalls are used instead of loose-boxes, it is advisable to have slatted boards for flooring (otherwise the goats are apt to get dirty) and these should extend a foot or so beyond the actual stalls, in order to prevent the goats standing back off them, which habit, if persisted in, puts such a strain on the goat's pasterns that it almost invariably weakens them, and the goat eventually goes down on them badly.

If goats are kept in loose-boxes the milking can be done in the boxes, the milker sitting on a very low stool,

but in the case of stalls it is essential to have a milking bench.

This is constructed as a low table, with the front legs continuing to a height of about 2½ ft. above the top of the bench and from side to side of these, two bars can be made to run across the top, one being hinged so that it can be closed down over the goat's neck. This must not fit tightly or the goat will be alarmed. Goats very soon get accustomed to being milked on a bench and will jump up there immediately they are released from their stalls and many require no fastening up during the process of milking.

Housing for Goatlings. Goatlings do best if allowed to run loose together in a large well-lit shed, as they get much more exercise in this way than if the building is divided into boxes.

The house should have a feeding rack fastened to the back wall and a long hay-rack on one or both of the end walls; the front of the shed should have as many windows as possible.

The best way of feeding so that no bullying occurs is to make a wooden trough about 5 in. from back to front and 5 in. deep, at each end of which there should be a board the width of the trough and 18 in. high; a board, the same width as the ends, should be nailed to these uprights and vertical slats fixed 10 in. apart from the top board to the front of the trough. The animals to feed have to put their heads in between the slats, so they cannot push along to disturb their neighbours. If they wished to do so, they would have to take their heads out of the trough, and as this would mean losing their place

and having to find another they quickly learn it is not worth while, and in this way all quarrelling is avoided.

The kids are kept together and fed on exactly the same principle, but the vertical rails of their food trough need be only 6 in. apart. I find this type of house keeps them growing splendidly and the exercise helps to keep them sound on their legs.

It is an asset if exercising yards can adjoin the sheds so that the animals are able to run in and out at any time of the night or day, but this cannot always be arranged.

CHAPTER III

CHOOSING STOCK

BEFORE he or she spends money on goats, I strongly advise the prospective goat-owner to become a member, an associate or subscriber, of the British Goat Society, and so gain a little knowledge of the subject. When I first considered taking up pedigree goats I became a member and, furthermore, I bought a complete set of all the Herd Books of the Society so that I could study the pedigrees and make my plans accordingly, and I am confident that it was money well spent. To make a real success of anything, one must devote some thought to it, and surely it is better to think first, rather than to make mistakes and have to think afterwards how to remedy them.

Having read the description of the different breeds—and I have tried to give an unbiased description of them—the prospective goat-owner must make up his mind—before buying and not after—which breed he prefers and thinks he would like to keep. Words, I am afraid, do not convey a great deal to people who have never seen the different varieties of goats so, if possible, herds of them should be seen. Goat-breeders are usually only too pleased to show prospective beginners their animals and one can learn more like this in a few minutes than from hours of

study of pen pictures—but—and this is very important—*please be sure and make an appointment with the owner before calling.* It is most annoying when one is just going out, or busy with other things, to have someone asking to see the goats and it puts the owner in a very difficult position. Either he or she has to see the visitors and thereby fail to keep the going-out appointment, or else appear discourteous and send for an employee and hand them over to him or her, and this one really does not like to do. Furthermore, in an establishment where herding is a matter of routine, the chances are that the goats are not available.

After you have seen the various breeds of goats you should be better able to make up your mind which one appeals to you most, but even so, you will still have a lot to decide. For instance—what aged animal do you want to buy, and for what purpose? There are many other questions that will come into your mind.

We will take the last question first—for what purpose? Do you want milk and nothing more, or do you want to build up a herd with which to win prizes? If your desire is merely to have a goat to supply milk for the household, then probably colour and markings will not be of any interest to you, so I advise you to buy a British or mis-marked goat, as it is likely to give you plenty of milk and will be a little cheaper to buy than one of the definite breeds.

If you are more ambitious, and hope to breed up an exhibition herd, you had better select one of the definite breeds. On this point I dare not advise you, for fear I am accused of favouritism. But when making your

decision remember that, with ordinary luck, the day will dawn when you yourself will have stock to dispose of, and it therefore behoves you to choose a popular breed for which there will be a ready market.

Whether you want a goat purely for milk or for exhibition, your primary object will, in the main, be the same, i.e., a high yield of milk, and it is now that your Herd Books will help you. From these, you will be able to ascertain which families breed the most consistent winners both in inspection classes and in the milking trials, and in many cases you will also be able to ascertain (from the section giving the officially recorded yields of goats) the total yield given in a lactation. When considering this latter point, do not forget to take into consideration the number of days that the goat was in milk.

In 1897 the officials of the British Goat Society devised a very ingenious method for showing at a glance the good milkers. Any goat that obtained a minimum of a certain number of points in milking trials held at a show under official supervision was awarded a star or "Q" star, and this was written after her name—thus Dainty Bess*—and if her daughter in her turn also qualified, then she added another star to her name—thus Dainty Dora**—and so on for each generation qualifying as a star milker in direct female line. However, this system became so cumbersome due to so many successive generations gaining their stars that a new method was evolved. Now the goat carries only her own star or "Q" star after her name and a number denoting how many previous generations qualified for this distinction. Thus a milker, say, Jemima, gaining her star and descended from six genera-

tions in direct female descent would be designated Jemima* 6. The number of times a goat qualifies makes no difference, she can only add one star to her name. There are two kinds of stars, commonly known as "plain" stars and "Q" stars. The latter are also won on points, but, to qualify, the goat must give a percentage of not less than four per cent butter-fat, or over, at both morning and evening milkings.

Concurrently with this is a system for the males, the sign in this case being a dagger (†). The condition regarding this prefix is entirely hereditary, the male himself doing nothing to earn the distinction. The dagger is placed before the name of any male goat whose dam and sire's dam have qualified as star or "Q" star milkers.

Should the daughter of a star milker die before she qualifies and yet leave a daughter herself, this animal will have to begin at the beginning with one star, the sequence having been broken.

In recent years so popular has official milk recording become that it was decided to have distinguishing marks for animals which yielded certain quantities of milk in a lactation. This is shown by the prefix R, and the figure immediately following this denotes the amount of milk the goat has given. R2 is the lowest R awarded, and a yield of 2,500 lb. in a lactation entitles a goat to this prefix. R3 shows a yield of 3,500 lb. and so on for each additional 1,000 lb. A male goat whose dam and sire's dam are both entitled to the R prefix is denoted by a sign called a section mark (§). If his dam has qualified for the Register of Merit or Advanced Register he is eligible for the double section mark.

Presuming that you mean to start on the right lines, you will probably wish to obtain stock from either star milkers or officially recorded animals whose records you can look up, and the more generations that have milked well the more likely are the laws of heredity to assert themselves and produce heavy milkers.

The stock from these well-bred animals will obviously cost more in initial outlay, but it is well worth while, as the progeny from them will be readily sold. You should go into the matter of pedigree really thoroughly so that it means to you a record of performances and not merely a list of names, and armed with this knowledge, you should be in a position to know what you require. But let me tell you to begin with that *perfect* animals do not exist. I do not go so far as to say that every animal has an outstanding fault, but I can say that I have not yet seen a goat that does not possess some fault or other. Therefore do not imagine the perfect goat can be bought.

What you will have to decide is—which of the many faults that animals are heirs to you dislike most, and an animal with this fault you must avoid buying, for no matter how good it is in other respects you will never be satisfied with your purchase. We all have our own fads and fancies on this subject. Strangely enough, the different breeds seem to have their own prevailing weaknesses peculiar to them, but if you have taken my advice and seen various herds, and are as observant as I hope you are, you will have detected this fact for yourself.

Should you already possess some goats which milk moderately well, but are rather nondescript in appear-

ance, and you wish to improve your stock, I would commend the Stud Goat Scheme to your notice.

This is a scheme which is jointly managed and financed by the Ministry of Agriculture and Fisheries and the British Goat Society, whereby really good males of different breeds are available at stud in all parts of the country at the nominal stud fee of 7s. 6d. to smallholders, cottagers, and others of similar position.

There is no doubt that this is an excellent opportunity for grading up and getting together a really satisfactory herd of milkers at a small cost.

A good deal of consideration must be given to deciding on what aged animal you want to buy, as there are three stages, so to speak—a kid, a goatling and an adult.

A Kid. This animal, if well bred and a good specimen, will cost you anything from five to twelve guineas at a month or so old. You will need to spend a lot of time and money on rearing her, and will get no return until she is two years old. (You can form an estimate of how much time and money you will have to give to her by reading the chapter on kid rearing.)

Nevertheless, so far as initial expenditure goes, this is the cheapest way to begin, and also it has as a recommendation in its favour the fact that you will get some experience of management, and also become familiar with the animal and she with you. But you will need milk to rear her in the early stages and where is your supply coming from? Provided you already have non-pedigree goats and are now launching out into highly-bred pedigree stock you will, of course, have milk avail-

able for kid rearing; otherwise, you will either have to purchase milk or buy a cheap non-pedigree goat. If you decide on a goat, this again means expenditure and cost of maintenance, and it is doubtful whether it would not be better to include that sum in your initial expenditure and buy a kid several months old that can do without milk. I believe it is possible to rear kids from a very early age with one of the baby calf starter feeds, but I cannot speak of this from experience, never having tried it.

A Goatling. This is an animal over one year old but under two. Her price will be from twelve to twenty guineas when mated, presuming her to be an animal of equal merit to the aforementioned kid, but a show animal likely to win would cost considerably more. In proportion to an adult, goatlings appear rather expensive, but this arises from the fact that so many are exported annually owing to it being the most suitable age at which to send them abroad. Kids do not stand voyages very well and there is not a stage in the life of a heavy milker when she is dry, except when far too heavy in kid to travel, and for these reasons goatlings are nearly always selected.

The purchase of a goatling is less of a gamble than the purchase of a kid, its development being nearly completed and its good and bad points clearly visible. There is also this point in favour of buying a goatling—you will get a return on your expenditure very quickly; not only will you have the kids in a few months, but you will also have your supply of milk.

An Adult. Here the uncertainty of what you are buying is practically eliminated, as the goat will either be in milk or dry after kidding, pending her next kidding. In the one case you will be able to ascertain what milk she is giving and in the other you can look up her records or inquire about her previous yield.

Being an adult, she is fully developed in every respect, so you can see for yourself exactly what sort of animal she is.

It is virtually impossible to put a value on a goat in milk these days. A strange combination of circumstances has brought this about. During, and for a little while after, World War II there was a tremendous boom in goat-keeping. Owing to cows' milk being rationed there was a great demand for fresh goats' milk at a very high price, and people paid ridiculous prices for any milking goat. Then the market for goats' milk dropped and literally scores of goats—no longer a paying proposition—flooded the market. But nobody wanted them, and even good goats could not be sold at any price or even given away in many cases.

Fortunately (sentimentalists, please forgive) a market for goats' flesh arose and the redundant animals were granted a merciful end. So many indifferent animals were thus disposed of that the standard of goats in general improved, but even so prices still remain very unstable. The idea of values seems to be a mixture of two extremes, ranging from the people who bought during the boom and still bear these figures in mind and the others whose only desire is to reduce their stock and who are, therefore, willing to sell at any price, no matter how low, in order to accomplish this.

Prices are further complicated by the shortage of money at the present time, so that many people who genuinely want a goat just cannot see their way to paying much for it. On the other hand, feeding stuffs, labour costs, etc., have gone up to such an alarming extent that it is impossible for breeders to produce a milker for the price the householder feels willing and able to pay. For these reasons it is unwise to try to place a value on a goat in milk. It seems private negotiations between buyer and seller must vary considerably in accordance with the conditions prevailing at the time.

An ordinary pedigree goat should give not less than 1,800 lb. of milk a year. This means an average of about 5½ lb. a day throughout the entire year, omitting six weeks for being dry previous to kidding. It can be presumed that a goat giving this yield annually would reach 9 lb. daily at the highest point of her lactation. A supply of 5½ lb. daily would probably be sufficient for the ordinary household, but the goat would be very much below the standard of the average well-bred milker.

A goat giving only about 5 lb. of milk at its highest is, in my opinion, not worth keeping, although I believe there are still plenty of householders who are quite content with this yield. To them a regular supply of milk is really of primary importance, and a very moderate yield practically the whole year round, especially during the winter, is a much better proposition than a goat that will milk heavily during May, June and July, and then drop rapidly in yield so that by the time winter arrives she is nearly dry; but length of lactation has been improved so much through breeders giving their attention to this

matter, that it is now quite easy, with good management, to keep a well-bred goat in milk continuously for two years or more without a kidding intervening. In fact, in some herds a two years' lactation is a common practice.

Where a large supply of milk is required in winter I recommend the keeping of three goats, so as to be on the safe side. One should be mated as early as possible, probably September, to kid in February, the second one mated in January to kid in June, and the third should be left unmated to milk right through to the next year.

The following year the routine should then be: mate goat number three early, goat number one to be mated in January and goat number two should milk right through.

CHAPTER IV

GENERAL MANAGEMENT

GOATS being by nature browsers and not grazers, they are not content to remain feeding in a meadow in the same way that general farm stock are, and to get to the food they desire they show such an amazing activity that it is not often possible to allow them their freedom, as few, if any, ordinary hedges will keep them in bounds and should they get out their destructive habits are apt to cause trouble with one's neighbours.

For this reason it is necessary to give special attention to the method of keeping them and there are various ways of doing this—tethering, semi-stall feeding, fencing, or herding.

Tethering. This is about the worst form of goat-keeping there is. The goats are often exposed to all the elements with no escape, and they greatly dislike strong winds, rain and hot sun. Yet it is clearly not possible for the owner to keep running about moving the animals because the wind has changed, or the sun moved round. Furthermore, the goats waste more food than they eat, and looking at it from all points of view it is the most unsatisfactory method of controlling them that I can think of.

But, if you simply must tether, use this method. Have

a small hut about 4 ft. 6 in. square placed on wheels (so that it is easily movable) with a doorway about one-third the width of the front, the rest being boarded up. The doorway should not be in the middle, but to one side of the front, as in that position the goat has more protection from the weather.

Two stakes should be driven into the ground very firmly, one immediately in front of the opening of the hut and the other some distance away, and a piece of strong wire fastened from one stake to the other on which a strong ring is fixed to which can be fastened the goat's chain, so that instead of her having to go round and round in circles, she can go up and down and into her hut out of the wind, rain or sun.

The hut should be set so that cold wind does not blow directly in, but in extremely hot weather it should face north. This, I think, is the best that can be made of tethering, but I do not believe that the maximum results of which the goats are capable will be obtained if this method is adopted.

Semi-stall Feeding. This is probably the most efficient form of management for those who have not a great deal of time to spare and yet like to know that their animals are happy, comfortable and well fed. It consists of making a small yard or enclosure attached to the goat-house and fitting this up with racks of hay and green stuff. Chestnut pale fencing is very suitable for making this compound and racks are easily provided by tacking strips of wire netting on to the outside of the fencing. It should be tacked on loosely so that it forms a kind of bag, and the goats will be able to pull the food through between the up-

rights of the fencing just as though it were the usual type of hay-rack. Practically any weeds, prunings and outside leaves of vegetables can be given to them to sort over, but all evergreens, except holly and ivy, should be avoided, as many, such as rhododendrons, are deadly poison to goats. With this method the goats get plenty of fresh air and exercise. Goats confined behind chestnut pale fencing should not wear collars, as fatal accidents can happen so easily should the goat put its feet on the fence and then slip and get its collar caught upon the points of the pales.

When kept in an enclosure of this sort it is inadvisable to put horned and hornless goats together, as the horned ones invariably get the mastery over the hornless ones and bully them so that they do not get their fair share of the food.

Where it is impossible to have the compound attached to the goat-house, it is advisable to have some sort of shelter in it, as then the owner can leave the goats for hours without any anxiety, knowing there is no danger of their getting twisted up in their tethering-chains or breaking loose and straying on to adjoining property and doing damage.

When one only possesses an acre or so of land it is far more economical to cut the grass and put it into the racks rather than let the goats out on to it, as they really waste far more than they eat if constantly out on the same small piece of land.

A few goats can easily be kept in a two- or three-acre field and will provide themselves with sufficient green food. But special fencing would be needed, and as it is a

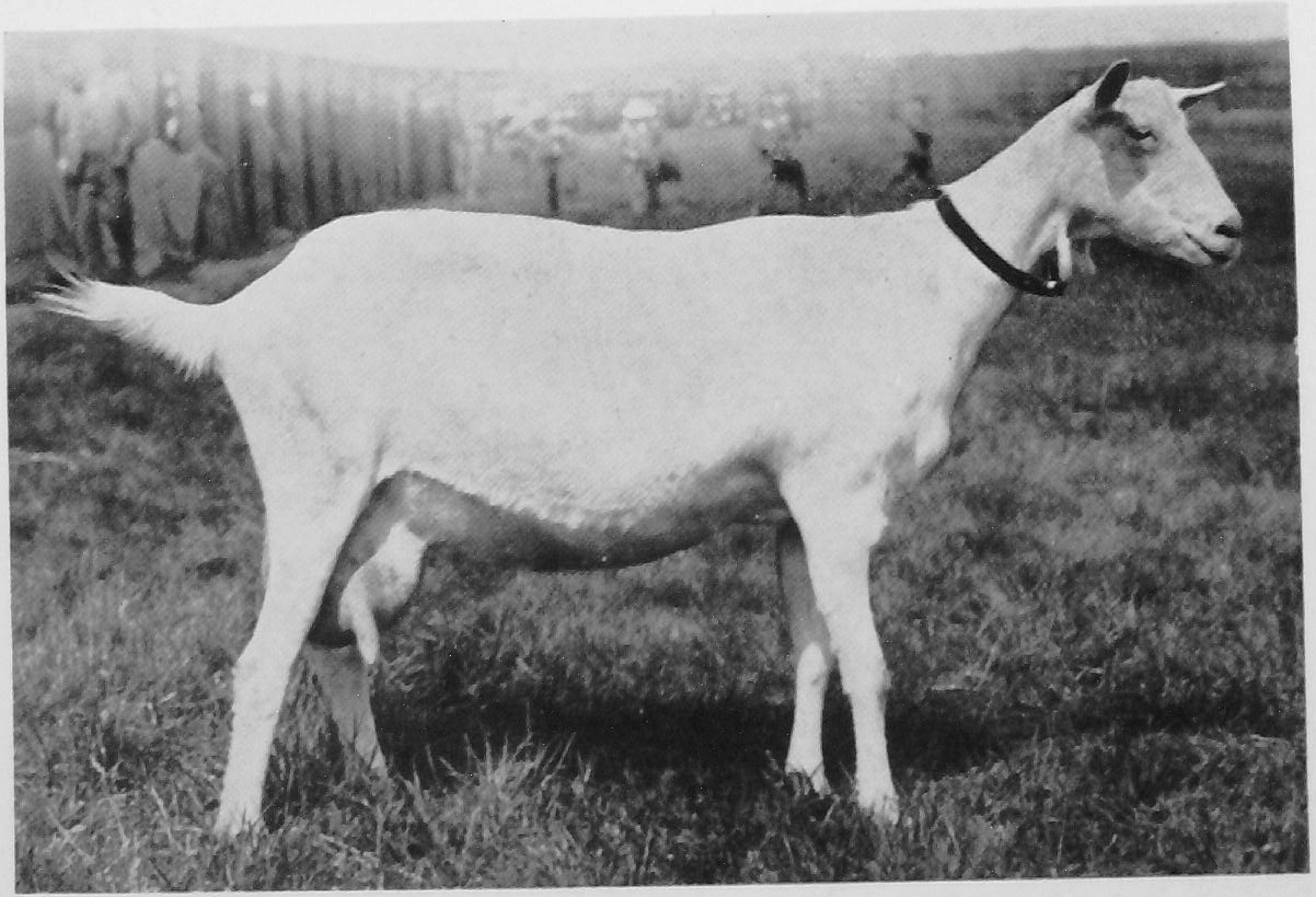
long way round a field of that size it would be very costly.

Electric fencing is, in my opinion, the cheapest and most efficient, and I can strongly recommend it. It costs considerably less to erect than any other form of fencing and the goats cannot harm it. Here we use two wires for our electric fence—one 14 inches from the ground and the other 24 inches.

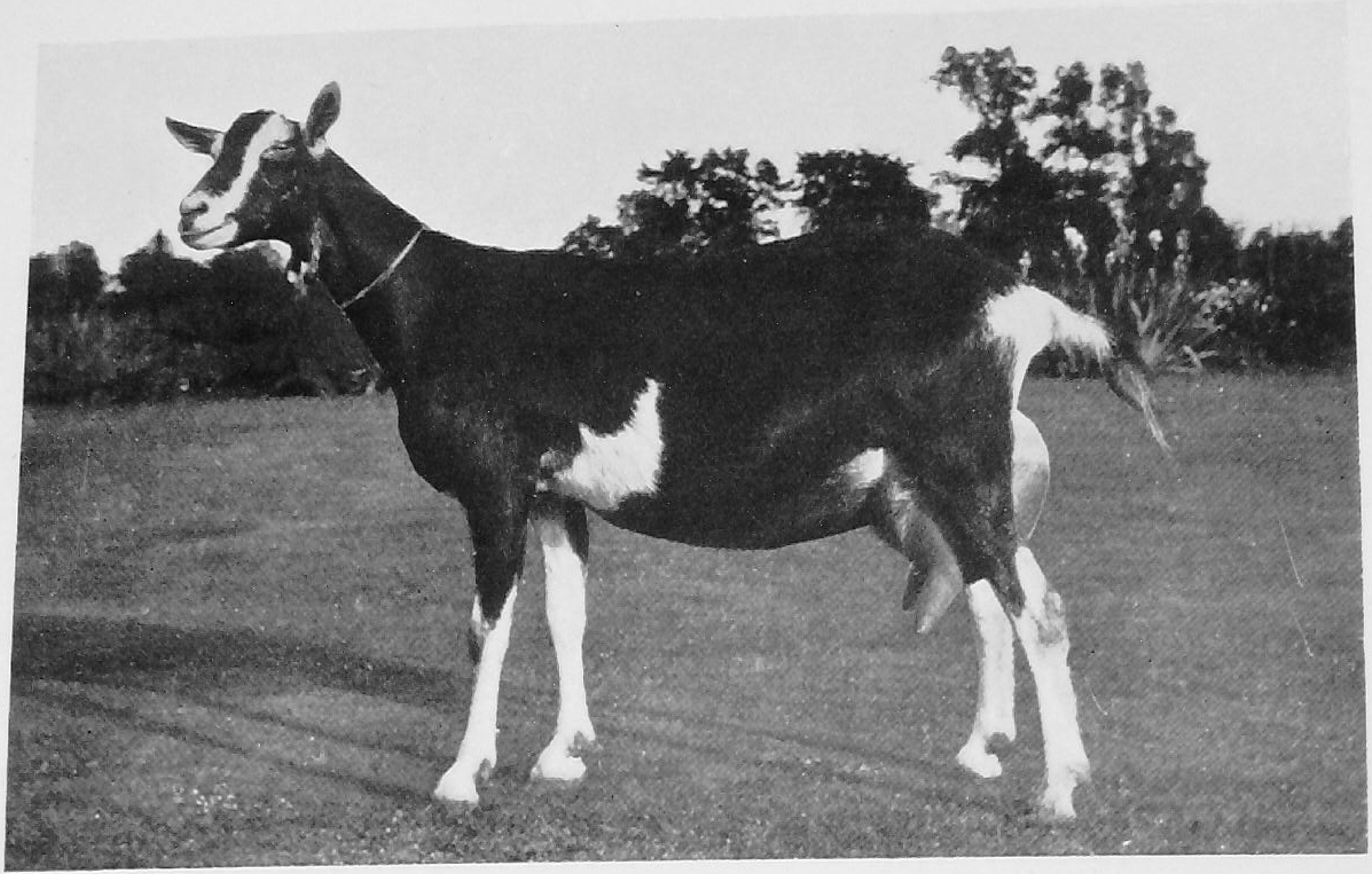
I have been told of some goats, mostly small ones, that jump over, but this is easily cured by hanging a short piece of light chain on to the goat's collar so that this will make contact with the fence while the goat is getting over and transmit the shock. Incidentally, the shock, though unpleasant, is quite harmless. Goats soon learn to respect the fence and my batteries are often turned off without the goats making the slightest attempt to get out, in spite of the fact that one hedge divides them from kale and roots and the other from arable crops.

Finally there is *herding* as a means of giving goats their green food supply. This is unquestionably the ideal method, but it entails the spending of a good deal of labour, or rather time, on it. In this way the goats get everything they need as regards green food—great variety of browsing and endless weeds, which is exactly what they want and do so well on.

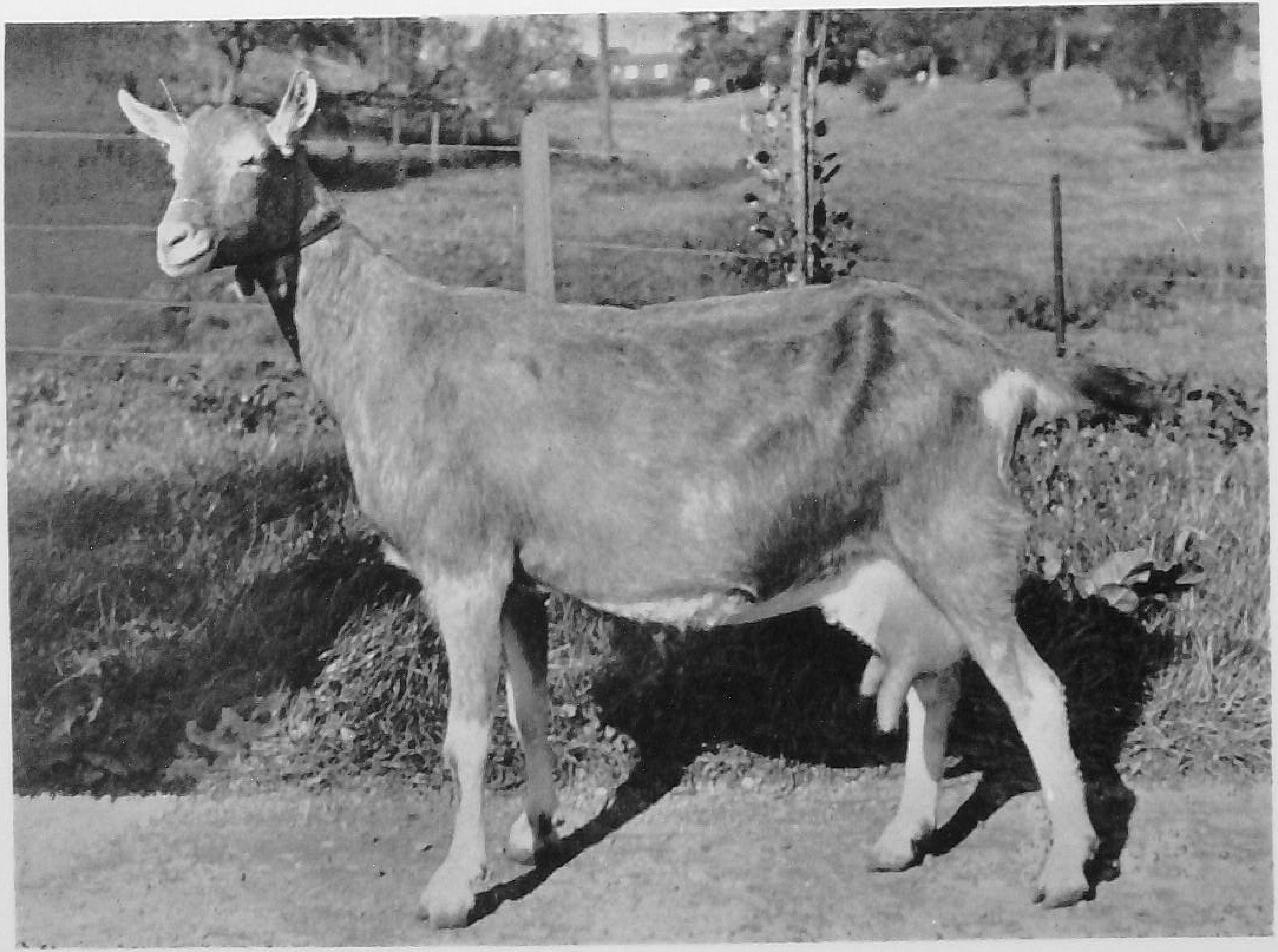
In order to keep the cost of food down as much as possible, branches and leaves should be obtained for the goats and in the autumn, when the local farmers are having their hedges trimmed, permission should be asked to take some of the trimmings for the goats. They will greatly enjoy these and it will help to delay the seasonal decline in their milk yield.



A BRITISH SAANEN FEMALE
Ch. Mostyn Marigold Q*1
Breeder : Mrs. Mostyn Owen Owner : Miss Mostyn Owen



A BRITISH FEMALE
Ch. Didgemere Dream *1
Breeder and Owner : Mrs. Arthur Abbey



A BRITISH TOGGENBURG FEMALE
Ch. Cornish Saint Q*
Breeder and Owner : Mrs. Morcom

A BRITISH ALPINE FEMALE
Ch. Didgemere Delysia Q*3
Breeder and Owner : Mrs. Arthur Abbey

CHAPTER V

GOATLINGS

A GOATLING is a she-goat over one year old but not exceeding two years.

It is at this age that the members of the caprine family are at their best from the spectacular point of view. They are—or should be—plump, shapely, and full of bloom, with, perhaps, nice little udders. Later, as mature milkers, they lose this sleek and "girlish" look and the udders of heavy milkers, however well hung, cannot truthfully be described as elegant.

At no time in her life will the animal give less work. All that has to be done for her is to make sure that she has sufficient food. She must have concentrated food to supply the necessary proteins for growth, and bulky food in order to develop a good depth of body.

She will probably come into milk if bred from a heavy milking strain, in which case it will be necessary to milk her as soon and as often as her udder feels full; it may not need to be done regularly, but the udder should not be allowed to become uncomfortably hard, or it may worry her and cause her to start sucking herself—a most difficult habit to stop.

Towards the autumn the goatling will probably be on the heavy side if she has had plenty of browsing and

grazing, but it is a mistake to cut down her food supply because of this. She will soon get rid of any superfluous condition when she begins to milk heavily. There is no fear that this will tend to make her kidding more difficult, because my experience has taught me that it makes no difference whatsoever.

FIRST KIDDERS

There is nothing of much more importance to note in the management of a first kidder than in any other milker —with two exceptions, and that is, careful handling in milking and getting the correct rations eaten.

First of all, one must remember that the newly formed udders are frequently very soft and tender, and that their shape is easily spoilt if any pulling down of the teats is practised, so particular care should be taken in milking. Secondly, it may be found rather difficult to get the concentrated rations eaten satisfactorily. Quite why first kidders should be "shyer" feeders than the average adult I do not know, but it often is so, and one must tempt their appetites, it being so necessary in their case that they should feed well owing to the need for growth as well as milk production. To get them to feed properly a tonic may be necessary, and a tablespoonful of Parrish's Food given in two tablespoonfuls of water daily will probably be all that is needed.

CHAPTER VI

BREEDING

FROM the first autumn of their lives, or possibly even earlier, the female kids will commence coming into season. This is manifested by redness and swelling of the vulva accompanied by a slight colourless discharge; the goat will also be very restless, calling frequently and wagging her tail. This condition continues for about two days and will recur every three weeks from September until February or even later, unless the goat is successfully mated. Although kids come in season the autumn following their birth, it is not advisable to mate them until they are fifteen to eighteen months old, otherwise their development may be retarded. If a male is not kept, it is advisable to inform the owner of the male that it is desired to use that you wish to book a mating, so that time is not wasted in the making of plans when the goat is actually ready.

The average gestation period of a goat is a hundred and fifty days, but this varies by a few days either way, so that plans and arrangements for the kidding should always be ready by the one hundred and forty-fifth day. But we will discuss this later on.

During the period the goat is in kid a little more care should be taken of her. She should be let out for exercise

whenever the weather is suitable. By exercise I do not mean simply turning her out in a field to fight with her companions; she should be taken for a short gentle walk round the paddock two or three times, unless she will go by herself.

Compared with other animals, goats become very heavily pregnant, and naturally their inclination, therefore, is to stand or lie about, but they must be compelled to take some exercise; otherwise, if once they are given in to, there is a tendency for them to develop some kind of muscular weakness in the hind-quarters with which they will not battle themselves and one has to help them to get up, which is very troublesome; the goat, too, rapidly deteriorates in health and condition, often culminating in a difficult kidding. In my early goat-keeping days I had several of these cases.

The signs of pregnancy are many and varied, but the very earliest is the ceasing to come into season, and the goat becomes quieter in disposition and generally goes up a little in milk for two or three weeks. After this there seems to be very slight alteration in the goat's demeanour, but the milk yield begins very slowly to diminish, and by the time she is half-way in kid her figure should begin to show her condition, but this varies greatly in different individuals.

Now that goats are bred so much for milk they do not always dry off naturally, particularly if they are only going to have one kid, and as it is very necessary that they should have a rest before kidding, preferably about six weeks, some steps must be taken to get them dry; this is best done by milking them at irregular hours and not

stripping. It has been advocated that where there is difficulty in drying them off all concentrated foods should be withheld, but I have tried this system and was not at all pleased with it. It is true the goat went down in milk, but it took six weeks in which to dry her off, during which time she became very poor in condition, so much so that I had to give her additional food before kidding, which caused her to start a flush of milk straightaway and in the end I had to milk her daily before kidding. Rather than starve a goat dry I would prefer to let her go on milking and feed her well to counterbalance the strain.

When a goat does not dry before kidding she does not usually reach such a high daily yield in her next lactation.

While in kid the goat should be fed as well as possible, as although she is not milking heavily she has to prepare herself for her next lactation and grow her kids. If she is allowed to get too thin before kidding she may waste a good deal of the early part of her next lactation, putting condition on herself instead of using her food for milk, or else remain thin throughout the whole of her lactation.

Breeder's Table

Mating date.	Kidding date.	Mating date.	Kidding date.	Mating date.	Kidding date.
Jan. 1	May 31	Jan. 8	June 7	Jan. 15	June 14
2	June 1	9	8	16	15
3	2	10	9	17	16
4	3	11	10	18	17
5	4	12	11	19	18
6	5	13	12	20	19
7	6	14	13	21	20

Mating date.	Kidding date.	Mating date.	Kidding date.	Mating date.	Kidding date.
Jan. 22	June 21	Feb. 20	July 20	Mar. 21	Aug. 18
23	22	21	21	22	19
24	23	22	22	23	20
25	24	23	23	24	21
26	25	24	24	25	22
27	26	25	25	26	23
28	27	26	26	27	24
29	28	27	27	28	25
30	29	28	28	29	26
31	30	Mar. 1	29	30	27
Feb. 1	July 1	2	30	31	28
2	2	3	31	Apr. 1	29
3	3	4	Aug. 1	2	30
4	4	5	2	3	31
5	5	6	3	4	Sep. 1
6	6	7	4	5	2
7	7	8	5	6	3
8	8	9	6	7	4
9	9	10	7	8	5
10	10	11	8	9	6
11	11	12	9	10	7
12	12	13	10	11	8
13	13	14	11	12	9
14	14	15	12	13	10
15	15	16	13	14	11
16	16	17	14	15	12
17	17	18	15	16	13
18	18	19	16	17	14
19	19	20	17	18	15

Mating date.	Kidding date.	Mating date.	Kidding date.	Mating date.	Kidding date.
Apr. 19	Sep. 16	May 18	Oct. 15	June 16	Nov. 13
20	17	19	16	17	14
21	18	20	17	18	15
22	19	21	18	19	16
23	20	22	19	20	17
24	21	23	20	21	18
25	22	24	21	22	19
26	23	25	22	23	20
27	24	26	23	24	21
28	25	27	24	25	22
29	26	28	25	26	23
30	27	29	26	27	24
May 1	28	30	27	28	25
2	29	31	28	29	26
3	30	June 1	29	30	27
4	Oct. 1	2	30	July 1	28
5	2	3	31	2	29
6	3	4	Nov. 1	3	30
7	4	5	2	4	Dec. 1
8	5	6	3	5	2
9	6	7	4	6	3
10	7	8	5	7	4
11	8	9	6	8	5
12	9	10	7	9	6
13	10	11	8	10	7
14	11	12	9	11	8
15	12	13	10	12	9
16	13	14	11	13	10
17	14	15	12	14	11

Mating date.	Kidding date.	Mating date.	Kidding date.	Mating date.	Kidding date.
July 15	Dec. 12	Aug. 13	Jan. 10	Sep. 11	Feb. 8
16	13	14	11	12	9
17	14	15	12	13	10
18	15	16	13	14	11
19	16	17	14	15	12
20	17	18	15	16	13
21	18	19	16	17	14
22	19	20	17	18	15
23	20	21	18	19	16
24	21	22	19	20	17
25	22	23	20	21	18
26	23	24	21	22	19
27	24	25	22	23	20
28	25	26	23	24	21
29	26	27	24	25	22
30	27	28	25	26	23
31	28	29	26	27	24
Aug. 1	29	30	27	28	25
2	30	31	28	29	26
3	31	Sep. 1	29	30	27
4	Jan. 1	2	30	Oct. 1	28
5	2	3	31	2	Mar. 1
6	3	4	Feb. 1	3	2
7	4	5	2	4	3
8	5	6	3	5	4
9	6	7	4	6	5
10	7	8	5	7	6
11	8	9	6	8	7
12	9	10	7	9	8

Mating date.	Kidding date.	Mating date.	Kidding date.	Mating date.	Kidding date.
Oct. 10	Mar. 9	Nov. 7	Apr. 6	Dec. 5	May 4
11	10	8	7	6	5
12	11	9	8	7	6
13	12	10	9	8	7
14	13	11	10	9	8
15	14	12	11	10	9
16	15	13	12	11	10
17	16	14	13	12	11
18	17	15	14	13	12
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25	24	22	21	20	19
26	25	23	22	21	20
27	26	24	23	22	21
28	27	25	24	23	22
29	28	26	25	24	23
30	29	27	26	25	24
31	30	28	27	26	25
Nov. 1	31	29	28	27	26
2	Apr. 1	30	29	28	27
3	2	Dec. 1	30	29	28
4	3	2	May 1	30	29
5	4	3	2	31	30
6	5	4	3		

CHAPTER VII

KIDDING

THE act of parturition in the goat need call for no more anxiety than the same procedure in any other domesticated animal, but this is not to say all kiddings are easy, for they are sometimes complicated and difficult, mainly due to three or four kids being so closely pressed together *in utero* that their limbs get misplaced, thus causing need for assistance, and for this reason it is not advisable to leave the goat entirely alone once parturition has begun.

From the one hundred and forty-fifth day from mating the kids are liable to arrive, so all plans for the event must be made. On no account must the goat be tied up, and if there should not be sufficient loose-boxes in which to place her it is quite easy to make a temporary one with hurdles tied together at the corners.

The experienced goat-keepers will have their suspicions awakened to the fact that kidding is fairly imminent by the goat having an increased appetite and eating hay in a peculiarly ravenous way. (I presume in nature they feed heavily before the event to prepare themselves for a good many hours without food.)

Now is the time to gather together all the things that will be needed in case one should be unfortunate enough

to have to render assistance. It is a great mistake to leave this to the last moment as it only tends to make one flurried—a thing that must be avoided, because the task before one requires steady nerve, pluck and kindly sympathy.

It is perhaps one of the most distressing parturitions to witness, as goats make use of their voices a good deal. The requirements will be a spotlessly clean pail (this should be scalded out before using), soap, disinfectant, kitchen paper, rough towels, and carbolic oil. The pail will be needed for disinfectant and water, in which one's hands must be thoroughly washed; the finger-nails must be cut short. The soap is to wash the hands and arms with, in the event of assistance being needed. The disinfectant is also necessary for the hands. For this purpose I think Dettol is the most suitable; it is a non-irritant, easy to use, and has a rather pleasant smell. But whatever disinfectant is chosen, care should be taken to read the directions thoroughly before making use of it, as some can do damage if used too strong. The kitchen paper (the soft kind, not greaseproof) is very helpful when crumpled up to wipe the worst of the slime off the kids, and the towel will then help finally to dry them.

When assistance is needed it is a matter for individual preference whether soap, 5 per cent carbolic oil, or Dettol obstetric cream is used to lubricate the hands and arms. If soap is used the whole hand and arm must be lathered, and if carbolic oil or cream the arm must be smeared thoroughly all over with it. I used to use the soap method, but now I prefer the oil.

Goats usually show symptoms of kidding some two or

three hours before it actually takes place, but in this respect individual animals vary. The first symptom is: the animal becomes fussy, calling to anyone who passes by. On inspection it will be found that the udder is rapidly filling up with milk and it may even be tight and shiny looking, and the goat seems to have gone down in size owing to her being hollow in the flank. Her tail appears to be carried higher than usual and there are two decided hollows on each side of it, which make her hind-quarters appear to slope very sharply, and she will by now be getting more and more fidgety, breathing rapidly or even panting. She shows evident signs of pain and keeps scratching up her bedding and lying down, only to get up again in a few minutes as if she cannot find comfort anywhere, and this performance is repeated time after time.

Soon there will be a thick, white, starchy-looking discharge and this is rapidly followed by one of slightly different appearance, being more opaque in colour, in fact closely resembling the white of an egg. When this is seen, confidence may be felt that parturition has really begun.

The thick starchy-looking discharge should always be looked upon as a warning that kidding *may* be near, although some goats will discharge like this for two or three days before kidding, but it is not then accompanied by restlessness or excitability, and not until the character of the discharge changes can absolute certainty be felt that kidding has commenced.

Very shortly, straining will begin, at first only slightly, but the pains gradually increase in intensity, during which

time a slimy mucus is exuded and this is quickly followed by the water bag in which, floating in water (*liquor amnii*), is the kid.

The bag must not be broken, although the temptation to do so may be great, as one gets the impression that it is adding to the goat's pain but, in reality, it is being helpful by dilating the parts and making the passage easier for the kid's exit. It is unwise to break this membrane for another reason, too—because if broken externally the slimy water runs away, whereas if nature takes her course and it is broken internally it will serve the purpose for which, presumably, it is intended—to lubricate the vaginal passage.

Straining now becomes very violent, and if the parturition is normal the bag will suddenly break and a portion of the kid will be visible. The first thing one should be able to see is the front feet and then the tip of the nose, as the normal presentation is the two fore-feet first, one very slightly in front of the other, and the head resting chin downwards on them. Should the labour pains be very severe there is no harm in helping the goat by taking a firm hold of the kid's feet and pulling gently downwards towards the goat's hocks as she strains. If the feet are too slippery to obtain a firm grip on them, the towel should be rolled round them to secure a hold. The goat may scream out as the head comes through the opening, but this is quite a commonplace happening and one must not be unnerved by it. For a minute or so she will probably rest while the legs and neck are in the passage, and she may be allowed to do this so as to have a "breather" as the kid appears to take no harm; after

that, with renewed efforts, she will expel the rest of the kid.

When there are two or more kids, the second may come hind-feet first, in fact this happens so often in multiple births that I should consider it almost a normal presentation. As a rule these second kids are born without any assistance, but I have known cases where the weight of its head and shoulders seems to act as a balance against the lighter weight of its hind parts and the kid slides back into the vagina the moment the mother stops straining. In such a case it is better to take hold of the feet when they appear and gently pull them out, as if the birth is too long delayed the kid may be suffocated.

Should no part of the kid appear in a quarter of an hour in spite of the goat's continued and violent straining, one should investigate the cause of the delay, and this has to be done by internal examination. The hands and arms should be thoroughly washed in disinfectant and water and, as mentioned before, either a lather of soap should be made with which to coat the hand and arms, or carbolic oil or cream applied. Then, with the fingers drawn together into the shape of a cone, the hand should be gently inserted into the goat's vagina and endeavour made to find out in what position the kid lies. Something hard will quickly be found and it is one's business to ascertain what part of the kid's anatomy it is and, if possible, to try and identify a foot. Once having got hold of a foot it should be followed up bit by bit to the first joint, and from this one should be able to make sure which leg one has come in contact with—a fore-leg or a hind one. The next thing to do is to feel

for the second leg and bring this into the right position also, and then find the head—put that straight, and remove the hand.

In a few minutes the goat will probably begin to strain again and as soon as the feet appear a little assistance should be given her by gently pulling as has already been explained.

The majority of cases of delayed birth are usually due to some slight malposition of the kid rather than its actual size, and the most common of these is the folding back of one or both fore-legs. In this case the examination is made in the same way, but the foot will not be so easy to find, as the hoof is tucked away underneath. Plenty of room is needed to undo this tangle, so the kid should be carefully pushed right back into its mother as far as possible, because the goat is much wider there and one is far less likely to bruise or damage her with one's manipulations than if an effort is made to unfold the legs once they are in the vaginal passage, a thing one is not likely to be able to do, as there is not the necessary space.

To unfold the leg it should be taken hold of between the hoof and the knee and with a slight lifting action pushed backwards and upwards, and then unfolded and pulled forward into position. Difficult as this may sound, it is not nearly as complicated as one would imagine. If one wishes to prove this for oneself, pick up a small kid or a dog and fold and unfold its legs, and it will at once be realized exactly what kind of action is needed should assistance have to be given at one of these types of kiddings. Should both legs be folded back, each leg will need treatment in the same way.

A croup presentation—that is one where the kid comes tail first—is rather more difficult, but one should be able to manage it safely if only my advice is taken and the kid pushed well back. The kid's doubled-up hocks should be felt for—they ought to be found quite easily (they feel like a bony V)—the under side of the hock is taken hold of, and the leg hitched upward, gently pulling the foot from underneath.

There are other complicated cases which one may meet with, such as kids having their legs over their heads instead of under—which one can easily remedy—but such cases as kids' limbs being mixed up with each other, or heads badly twisted back, I do not recommend any amateur to tackle. The former because it needs more knowledge of anatomy than the average person possesses and the latter because the neck is sometimes twisted so badly that only with instruments can it be kept straight enough to follow the legs through the passage.

In my opinion instruments in untrained hands should be taboo. When the kiddings are of a more complicated nature than those I have mentioned, the only humane course is to get skilled veterinary attention directly one realizes one is out of one's depth. There is no disgrace in admitting defeat, and it is fairer to the goat, oneself, and the veterinary surgeon to send for him as soon as possible and before the goat is exhausted or perhaps fatally injured, by pulling at just anything one can get hold of, without the slightest idea what it may be, in the vain hope that something will happen.

Directly the kid arrives all the mucus should be cleaned away from its mouth and nose, so that it can breathe

freely. Should the kidding have been a very long and tedious one, the kid may be very weak and exhausted, showing little sign of movement; if so, it should then be carried out into the cold air or laid on the floor and artificial respiration applied. This is performed by holding the front legs in one's hands and pumping air into the lungs by pressing the legs slowly backwards and forwards. The object is to get the kid to gasp, for once it has done this it will soon rally and can then be put back with its mother; help can be given her to dry it, but she will do the greater part of the work by licking it.

If you suspect there is a companion kid to come it is best to stay with the mother, for some goats have a nasty habit of pawing their first-born kid and may easily damage or even kill it; if preferred, the kid can be placed in a deep box or hamper where its mother can reach it, but this receptacle will need securing firmly to the wall, otherwise the goat will knock it over.

After the kids have arrived the goat should have a warm oatmeal drink. This is made by mixing two handfuls of fine oatmeal into a smooth paste and adding boiling water to it, stirring slowly all the time, and then cooling it down to drinking temperature. Some goats like a tablespoonful of treacle in it.

The kids will now be ready for feeding and the goat glad to have her udder relieved, so either get them to suck, or else milk a little colostrum (this is rather thick, sticky yellow milk which it is most important the kids should have) into a baby's bottle and give some of this to them.

The cleansing, or afterbirth, is very variable in the time it takes to come, but should be evacuated in two to

four hours, and immediately this happens the parturition is finished. The goat's pen should be thoroughly cleaned and well littered down with plenty of clean dry litter. The udder and hind parts must be washed with warm water, with a little disinfectant in it, and thoroughly dried. Following this, a bran mash should be made for her and her rack filled with good hay, and then her owner's duty to her is finished.

It is essential that one should know for certain whether the goat has cleaned, for retained afterbirth means a lot of trouble and possibly the death of the animal, so a strict eye should be kept on her, as, if left to themselves, goats will eat their cleansing; though it is natural for them to do this and usually does them no harm, I do not recommend it for domesticated animals.

In the event of the afterbirth not coming within eight hours or so after the birth of the last kid, some encouragement should be given, and this is best done either by inserting a cleansing pessary or syringing with warm disinfectant. An objection to the pessary is that all the different sorts I have tried have had a most unpleasant smell, which permeates throughout the entire goat-house; also, rightly or wrongly, I believe them to cause the goat a certain amount of discomfort and for this reason I prefer syringing. I know that present-day veterinary practice is rather against this but, nevertheless, I have had a good deal of success with it, and as animals are of the same construction now as a few years ago, I prefer to remain old-fashioned in this respect.

The method I adopt is to use an ordinary enema (as sold by any chemist) with the vaginal mouthpiece

attached; this is inserted gently into the goat's vagina and the fluid syringed in (it is a great help to stand the bowl on a stool so that the tube of the enema is not likely to fall out of the solution, as if it does, and the end touches the floor, it will all have to be disinfected before it can be used again). Any good disinfectant may be used, but I do not recommend anything of a carbolic nature and for the reader's guidance may say that I use either Dettol and water, or Condy's Fluid and water as per directions. The Condy's has to be used in a proportion of one tablespoonful to a pint of water and at this strength, unless rubber gloves are worn, it will stain the hands, and for this reason preference may be given to Dettol and water. The water must be sterilized by boiling before use. One pint of the solution should be injected at a time, at a temperature of 103° F. This treatment should be carried out three times daily until the afterbirth comes away, and at each treatment the small amount visible should be very gently pulled. On no account must the pull be hard or internal hæmorrhage may be started and the goat lost.

CHAPTER VIII

KID REARING

THE parturition being over and the kids alive and active, they should be inspected to see if they are worth keeping. The rearing of kids is no light task nor a cheap one either, so that it will be best to look them over with a critical eye and a not too sentimental one, or the temptation may arise to keep inferior animals.

It is infinitely better to rear one thoroughly well than rear two badly and this should be borne in mind from the very beginning.

If one is endeavouring to build up a herd of animals of a certain breed, it is obvious that the correct points or otherwise of that breed will be of great importance, and mismarked and bad-type kids will therefore not be kept, unless their milking pedigree is so exceptional as to warrant their inclusion in the herd.

Sex will also be of great consequence, and if there are any males amongst the kids the everlasting problem will crop up—to rear or not to rear?

It is absolutely essential to be strict in the selection of the males to rear. No off-colour or mismarked animals should be kept. Dagger and section-mark males are practically the only ones for which there is a demand, and unless the parents are well-known animals the kids

are seldom saleable at a remunerative figure, except if disposed of when only a few weeks old.

It is amazing what a lot of milk—or milk and calf-meal—a male kid needs to grow him into a really fine animal, besides which there is concentrated food and hay to buy, not to mention the value of the amount of work involved, so that unless there is a certainty of a purchaser at a reasonably good price the venture is hardly likely to be a financial success.

Another consideration also is that he cannot live with the female kids—or females of any age so far as that goes—after he is three months old, and this means either keeping him in a shed and yard entirely—in which case green food has to be carried to him—or else having a very well fenced paddock, and I warn you that fencing against the escape of male kids is rather similar to fencing against rabbits!

This is one side of the picture.

The other is that if you have a lot of surplus milk for which you can find no use and cannot sell, and for that reason it is to all intents and purposes a waste product, it may be worth your while to make use of it in rearing a male kid really well for the export trade. Of course, his pedigree must be of the very best.

For many years horned male kids were not eligible for entry in the British Goat Society's Herd Book, but this has now been changed. They are, however, not accepted for the Stud Goat Scheme and this fact should be borne in mind when considering which, if any, male kids you propose to rear.

The first thing to look at in female kids is their teats,

to see that they are correctly formed and that there are only two of them. Supernumerary ones are very troublesome and sometimes are provided with a small orifice so that they yield milk, which may make milking a messy business, as it is likely to be difficult to direct the milk into the pail. Also beware of double teats; these are usually easily discernible at birth, or a few days after, by being thick looking compared with the normal teat. A kid that possesses these should be destroyed.

Faulty teats are, in my opinion, very hereditary. In my early goat-keeping days I had a family which produced them, and for some time I kept the kids, having the false teats cut off by a veterinary surgeon or tied off by a ligature, but in spite of using males from families entirely blameless in this respect, the fault kept on recurring so frequently that I finally destroyed the entire family.

At this age there is really nothing much one can tell about the conformation of the body, but the heads must be examined to see if they are horned or hornless. This is detected to some extent by the shape of the head. The head of a hornless kid is slightly rounded across the forehead, but the forehead of a horned kid is flat and has two small curls on each side where the horns would be eventually if allowed to grow. If there is any doubt, it is helpful to wet the head of the kid and then smooth the hair right back from just above the eyes to over the top of the head and leave it to dry. If the kid is horned, the two little curls already mentioned will reappear, whereas the hornless kid's hair will remain smooth. In the centre of these curls will be found a tiny little round patch of clear skin with a spot about as big as a pin's head.

Very rapidly, in almost a matter of hours, the horn bud will begin to grow up into a small bump, so that by the time the kid is three or four days old there should be no doubt as to whether it is horned or hornless.

There are two methods of kid rearing—the natural and hand-rearing, and, as is the case with most things, each has its advantages and disadvantages.

The natural method simply means leaving the kid with its mother to take what milk it likes, and in this way it is sure of getting its supply fresh, at the right temperature, whenever it needs it night or day, without any expenditure of time and trouble on the part of the owner.

But as no goat will allow its kid to suck it absolutely dry, and in the case of heavy milking animals the kid or kids cannot take all the milk their mother produces, it is necessary for the owner to strip the goat twice daily, that is milk it right out, otherwise the milk yield will speedily diminish.

This stripping out is by no means an enviable task, as the kid teases one incessantly the whole time, usually by jumping on one's back, or else worrying its mother so that she is fidgety and difficult to milk, and some kids develop the annoying habit of trying to suck immediately one begins to milk, and if the kid is turned out of the pen the goat gets in a panic and refuses to be milked.

Further disadvantages to this system are that the single kid will often suck from one side only, so that the mother's udder becomes permanently uneven; also the owner has no idea how much milk the goat is giving, as some kids drink much more than others. A mother-reared kid is never so tame and easy to handle as one that is hand-

reared and they seem to suffer a greater set-back at weaning time.

On the other hand, a mother-reared kid learns to feed at a much earlier age, which is certainly a good thing.

Provided one has the necessary time I strongly advocate hand-rearing. But it is very unwise to undertake it unless one is prepared to take the task in hand seriously and feed the kid regularly.

The main advantages of this method are that at a quite early age one can save milk by substituting calf-meal; that the kids can be grown to a larger size and that they can be kept growing better during the cold winter months by continuing to give calf-meal.

There are two ways of hand-rearing—feeding the kid with a bottle and teat, or from a pail, and when quite young it will learn one method as easily as the other. But pail-feeding is not usually very satisfactory, owing to the kid taking the milk too fast and without sufficient saliva to make the digestion of it perfect, which tends to produce "pot-bellied" animals with very little flesh on their ribs and hips.

If bottle-feeding is decided upon, it is best to start off with a baby's feeding-bottle with the ordinary rubber valve on it and a soft rubber lamb teat.

We leave the kids with their dams until they are four days old. The mother should be taken out of sight and sound of the kids and whilst having her attention distracted by someone either giving her titbits, or taking her out with the other goats, another person should take the kids away and put them out of her sight and sound. If done in this way the goat does not fret, but if she actually

sees the going of the kids she will probably call for some days.

Having separated them, the kids should be put into a fairly warm, light, and roomy shed, with a thick bed of straw or hay and provided with a fair-sized wooden box placed on its side; they will nestle up together in this and keep out of all draughts.

They must be fed four times a day to begin with, and they will need a baby's feeding-bottle full at a meal. Undiluted goat's milk should be given at a temperature of 101° to 102° F.

As soon as the kids' appetites have increased so that they will eagerly take two bottlefuls at a time, ordinary wine bottles can be used and given full at each meal.

Exactly what teat to recommend for use in this connexion I do not know, as, in my opinion, there is not a suitable one on the market; none lets in the air sufficiently and the kid tends to let go suddenly of the teat, with a consequent dripping of milk, which makes kid-feeding a messy job. One type has a rubber cork with a slight slit down it to let in air, commonly called a "plug" teat, but this is spoilt by the teat itself being too small, and the centre, which is a separate piece, is fairly easily pulled out of the plug part by a strong kid; also with this type of teat the kids often bite one's fingers. For some years now I have used a combined teat, which is the bottom of a plug teat with the actual teat itself discarded and an ordinary soft rubber lamb teat fitted over the flange instead. This works out quite well, but it is expensive, as it is necessary to buy two teats to make one.

When the kids are a month old, or more, one can (if

one wants the milk) begin to add calf-meal to their milk in gradually increasing quantities and the feeds can be reduced to three a day. They can also be allowed to go out with the herd.

Hay should now be provided in small hay-racks. Hay-nets should not be used, as they are most dangerous for kids; they are apt to get hung up in them.

At four to five weeks old they must be taught to eat concentrated food, and a good mixture is: equal parts of linseed cake dust, broad bran and flaked maize. They will only need a very tiny helping at each feed to begin with, and it should be given them night and morning; the amount can be increased as the kids' appetites develop.

At no time should they have more than one and a half pints of milk at a meal, or it may cause scouring and give the kids a nasty set-back. My kids have four bottles a day until they are six weeks old, then three bottles until July; from then until about the end of October two bottles a day, and thereafter one bottle of either milk or calf-meal until the spring. I find by continuing to give one bottle a day during the winter it prevents them from suffering any set-back through missing the green food.

From the time the kid is six months old she should be gradually taught to eat the various concentrated foods that will be used for her when she becomes a milker.

CHAPTER IX

DISBUDDING

ALTHOUGH all breeders now desire to keep hornless goats, the supply of good animals of the best milking strains is at present too limited for us to be able to afford to kill all female kids which happen to be horned.

The inheritance of horns being so uncertain (the same pair of hornless parents one year producing hornless kids and another year horned kids) there will be in all herds a certain number of horned female kids born, and as these would be a danger to other animals if allowed to grow up with horns, the obvious thing to do is to disbud the kid when young.

In the chapter on kid rearing I have explained how to tell whether the kid is horned or hornless.

Having definitely decided that the kid is horned, then, if it is intended to rear it, the only thing to do is to disbud it.

Three methods of doing this are as follows:

(1) By preventing their growth with a stick of caustic potash similar to the kind sold for disbudding calves.
(2) By burning them out with a red-hot de-horning iron.
(3) By the application of de-horning collodion.

(1) *Caustic Potash Method.*

To carry out the operation you will need a disbudding stick, a pair of sharp, fine scissors, a saucer with a small piece of blotting-paper in it, and a small piece of cotton-wool.

An assistant also is necessary to hold the kid firmly on his or her knees, folding its legs up in a sitting attitude and grasping the sides of the head in the hands.

The first procedure is to clip the hair with the scissors all over and round the spots where the horn-buds can be felt. The blotting-paper is then moistened in the saucer so that it is damp, but not wet; a piece is broken off from the end of the disbudding stick about an inch or so long (just sufficiently long to hold) and a piece of paper wrapped around the end so that it can be held without burning the fingers. The disbudding stick should at once be replaced in the glass tube in which it was sent and tightly corked, as the stick dissolves quickly when exposed to the air.

With the assistant firmly holding the kid, the operation is now proceeded with. The piece of disbudding stick is taken between the finger and thumb and the end pressed on the damp blotting-paper, then the kid's head is dabbed with the end of the stick all over the place where the horn-bud can be felt and also all round each, making a circle the size of about a halfpenny (I say "dabbed" because that best describes the way the stick should be used), repeatedly dabbing all over the circle and at intervals moistening the stick on the blotting-paper. The kid's head should not be rubbed with the stick, nor should

it be pressed sufficiently hard to break the skin, as the place should not bleed.

When the circle round one horn-bud has been "dabbed" for the space of about a minute, the same is done to the other, when the kid can be given a few minutes' rest. The operation is repeated to each circle and by the time the ground has been well gone over a second time the circle should be defined in a slightly black colour, looking damp, and the horn-bud should have begun to blister and become soft. I must repeat—*it should not be dabbed sufficiently hard to break the skin,* and the softer the bump becomes the more careful it is necessary to be.

Both circles having been done a second time, the kid can again be rested for a few minutes, after which it is best gently to give a third dressing to make quite sure that the horn-bud is soft, and also that a sufficiently large circle has been made.

When the operation has been satisfactorily completed, two small pieces of cotton-wool should be gently pressed on the two circles so as to absorb any moisture there may be. The kid should then be placed somewhere by itself for a little while, after it has been watched for the first few minutes to see that it does not rub its head against things, but it very soon appears to have forgotten all about the operation.

There is always a difficulty in disbudding a kid which is to be mother-reared, as in this case the kid must not be replaced with its dam for an hour or so, and whenever it is put back it is necessary to see that the mother does not lick the kid's head, as she may be inclined to do.

(2) *De-horning Iron Method.*

This is very satisfactory if done by someone with an iron nerve. For this method a special disbudding iron is required and can be bought from a maker of veterinary surgical instruments. The iron must be heated *absolutely* red hot. Press it down firmly right on top of the horn-bud for six seconds. There will be a nasty smoke and smell as the hair burns away and the flesh will be destroyed right down to the skull, leaving the horn-bud sticking up in the centre of the burnt ring. Now re-heat the iron and with the edge burn the horn-bud down level with the rest. This the kid does not feel at all. All this sounds very cruel, but from what little I have seen of it I should say it is by far the most humane method, as the kid appears to feel nothing except the first application, whereas both the first and third methods undoubtedly give some pain—or at any rate grave discomfort—for anything from five to fifteen minutes at least. Probably it would be easier for the operator if the hair was cut off round the horn-bud before the red-hot iron was applied.

(3) *De-horning Collodion Method.*

For this a small outfit called a "de-horning outfit" is bought. It consists of a bottle of disbudding collodion, a bottle of grease remover, and a small brush with which to put on the collodion. I have heard of excellent results with calves, but rather varied ones where goats are concerned. Never having tried this method myself I am unable to speak from experience.

CHAPTER X

FEEDING AND FOODS

BY the time this book appears again it is expected that the rationing of animal feeding-stuffs will have ceased, so that we shall probably be able to feed our animals better than at present. Prices will be extremely high, however, in some cases double those of pre-rationing days, and many foods are likely to continue in short supply.

In the chapter on kid feeding I have mentioned how to start the kids on to their menu, and the amount should be gradually increased as the appetites of the kids grow. Care should be taken not to under-feed them, as they are easily stunted by insufficient food, and it is also necessary to make sure that they have a high enough percentage of protein in their concentrated ration which, for growing animals, should be one part protein equivalent to four parts starch equivalent. If they have an insufficiency of protein and an excess of starch, they are liable to become compact and fat, rather than to develop into big-framed animals, and, if possible, they should be so managed as to become large, as I find from experience that well-developed animals keep their condition better than the small ones when milking heavily.

From the age of four weeks to six months, the kids

should receive the ration mentioned in the kid-rearing chapter, but from then onwards they should be given the concentrated food as used for the rest of the herd in increasing amounts, until by the time they are nine months old, or thereabouts, they are receiving one to two pounds of concentrated food daily, and this amount ought not to need increasing until they are goatlings in kid, provided that they have a plentiful supply of good hay and green food in addition.

For convenience, because it fits in with the usual routine work, our kids are given concentrated food three times daily from the time they are six months old, but it is not at all necessary to adhere to the hours given in the following programme, nor are they ideal.

Morning, first thing, milk feed, hay-racks filled, one-third concentrated ration given.

10.30, go out with herd, and return at 1 o'clock.

1 p.m. to 2.30 p.m., one-third concentrated food.

2.30 p.m. to 4.30 p.m., out with herd.

5.30 p.m., one-third concentrated food, and hay-racks filled.

7.30 p.m., last milk feed.

The goatlings are fed at the same time as the kids, but of course have no milk feeds.

In the summer the milkers are given 1 lb. of concentrated ration before milking, and after milking have their hay-racks filled up. After breakfast they have a drink of warm water offered to them and remain indoors until 10.30. From 10.30 until 1 o'clock they go out browsing and usually have a drink at one of the water-troughs on their way home. At 1 o'clock they have some more con-

centrated ration, at 2.30 they go out grazing until 4.30. At 6 o'clock they have their third meal of concentrates, and their hay-racks refilled if empty. Milking then takes place.

Any goat yielding over 12 lb. of milk is given an extra feed after the evening milking is over, if she will take it.

In the winter, goats, goatlings and kids are all fed and watered alike in the morning. At midday the milkers have sugar beet pulp scalded, or pulped roots sprinkled with weatings. In the afternoon, about 3.30, concentrated ration (according to yield) and hay-racks filled. Milking time, concentrated food (according to yield) and the hay-racks refilled if necessary.

Goatlings and kids have their second feed at midday, consisting of one-third of their concentrated ration with scalded sugar beet pulp, or pulped roots added, and at four o'clock they have the last portion of their concentrated food and their hay-racks filled up.

From the end of October until the end of February the kids have one bottle a day of milk, or calf-meal and milk, given directly after lunch.

All animals have water always before them, and also mineral licks. In addition to the latter, they either have minerals mixed in their food, or else in a small trough from which they can help themselves *ad lib.*

As regards quantities of food, each goat receives about 4 lb. of hay, 1 lb. of concentrated food, plus production ration according to yield, and in winter either 6 oz. of sugar beet pulp (weighed dry) or 2 lb. of roots sprinkled with weatings and bran. When possible, green stuff is given instead of roots.

The goatlings get $1\frac{1}{2}$ lb. to 2 lb. of concentrates daily, if not in milk, and more in proportion if in milk.

It is usual in considering the question of the feeding of dairy animals to divide the rations into two distinct parts—the maintenance ration and the production ration, and each has its definite uses.

The maintenance ration is used for mere existence, that is to say, to provide the energy for exercise, digestion, breathing, and the ordinary functions of the body, and to keep up the temperature of the blood.

The production ration is literally for the purpose its title suggests—to produce. It is used for the development of the young animal, the yielding of milk, the formation and growth of the young in pregnancy, and the maintenance of condition.

The feeding of milkers is of the utmost importance, and unless they are given suitable and sufficient food it is quite impossible for them to do themselves justice and produce the amount of milk which, by breeding, they are capable of giving.

Roughly speaking, one may assume that the grazing and browsing in the summer, and the hay, roots or green stuff in the winter, with about 1 lb. of concentrated food, supply all that the average goat requires in the way of maintenance, but taking into consideration the heavy weight of kids that goats frequently carry in pregnancy, and the fact that they have so short a time between the cessation of milking during pregnancy and the birth of the next kids in which to prepare for their coming lactation, it is not wise to take this amount of food as an absolute standard, and owners must use their

discretion as to whether they consider that more is needed.

Presuming this maintenance ration to be sufficient, one then has to add the production ration for the milk yield and 5 oz. of concentrated mixture should supply sufficient for each pound of milk yielded.

To the average person the working out of correctly balanced rations is none too easy, but as nearly all text books on feeding give the analysis of suitable foods I feel it would be merely waste of time to endeavour to show how the figures are arrived at, when duly qualified people have already done the work for us; therefore I propose to give a list of the easily obtainable foods with their analyses and protein equivalents compared to starch equivalents.

Seeing that it is not possible to know the exact analysis of the bulk feed in either the winter or summer ration, owing to the variation in the herbage and quality of the hay, it is unnecessary to be too exact, and for all practical purposes a production ration of one part protein equivalent to four and a half starch equivalent will serve our purpose.

It is advisable to make up the ration with several different ingredients, as mixtures have been proved to give better results than single foods. The rations should also be palatable, easily digested, and as cheap as possible in proportion to their feeding value.

I fear there are some goat-keepers who will think that the feeding of the production ration according to yield will be such a trouble as to make it not worth while, but I can assure them it is not so, and that in practice it is very simple.

My plan is to have separate bins for the different rations, and these are filled up weekly. In each bin is an enamel bowl which holds 1 lb. of that mixture, and all one has to do is to put the necessary amount for the meal into a pail and go round the goats giving each animal the correct amount for her individual yield, using the pound measure to serve it out with. Unless one is prepared to do this, one is not likely to obtain the maximum amount of milk at the minimum cost, for if all are fed alike the heavy milkers will go short of food and drop in milk, or the goats giving less milk will be over-fed.

I expect the feeder of the goats will also do the milking so that he or she will know how much food to give, but if such is not the case the amount each goat is entitled to (worked out weekly from her record sheet) should be marked on her loose-box door or stall.

When the goat is going up in milk she should be fed a little in excess of her needs so as to encourage her to do her best, but as soon as extra food ceases to produce extra milk it may be assumed that she has reached the maximum production of which she is capable, and it is useless and wasteful to continue to feed her in excess of her requirements.

The following rations are palatable to goats and give good results:

Ration 1—

7 lb. linseed cake.
6 ,, flaked maize.
6 ,, split beans.
3 ,, bran.

Ration 2—

5 lb. decorticated ground-nut cake or meal.
9 ,, flaked maize.
3 ,, oats.

Ration 3—

4 lb. soya bean meal.
8 ,, flaked maize.
4 ,, bran.

FOODS

Beans. These can be bought in various forms, as flaked beans, kibbled beans, or bean meal, and goats show a preference for them in the order they are here set down. In protein content they are very similar to linseed cake, and are interchangeable in a ration, mixing them in the same proportion. Their effect on the animals' digestive organs is costive, so that advantage should be taken of this fact when making up rations in the spring when the grass is very lush.

Bran. This is the outer skin of wheat. There used to be two kinds sold, ordinary and broad, but I believe only one type is now available, commercially known as "coarse millers' offals". Care should be taken when buying, as the quality varies greatly. Bran soon deteriorates with keeping, losing its fresh smell, and is also apt to become "mitey". It is a very useful food for goats, being palatable and very slightly laxative; it is useful in helping to lighten a mixture in which heavy meals, such as bean

meal or maize gluten feed are used. Bran is already correctly balanced for milk production (1 to 4·2), so can be added to any ration without altering the balance.

Coco-nut Cake. This cake is very indigestible, so should be used with care, and not more than half to three-quarters of a pound should be given in the day. It is very absorbent and for that reason is best soaked with water before feeding. It had a reputation for producing milk high in butter-fat content, but doubt is now cast on this. It should not be stored for long, as it has a tendency to turn rancid.

Cotton Cake. There are two kinds of this cake sold, decorticated and undecorticated; the latter contains the leathery husks ground up, and would give one the impression of being very indigestible. It is commonly used by farmers for animals on lush grass owing to its astringent properties. Decorticated cotton cake (or meal) is bright yellow in colour and has a rather pleasant smell. It has a reputation for not being good for young stock and is also apt to set up some kind of poisoning, so I prefer to avoid the use of it altogether.

Grains, Dried. These are a by-product of barley, being the residue left behind in the mash-tubs in the process of brewing. They can be bought in their wet state, and like this are largely used by dairy farmers as a milk-producing food, but owing to the fact that they will only keep fresh for a day or two they can hardly be looked

upon as a practical food for goats, even if the animals could be persuaded to eat them. In the dried form the grains have a pleasant smell; they should be free from dust and bright in colour, somewhat resembling good grass seed in appearance.

Ground-nut Cake. This is a cake made from the nut commonly called the pea-nut or monkey-nut, and is sometimes known as earth-nut cake, although its usual name in commerce is ground-nut cake. There are two forms of it, the decorticated and undecorticated, so that when ordering it is necessary to say which is wanted. I have never used the undecorticated so cannot speak of it from personal experience, but the decorticated we use regularly. There seem to be at least two forms of this. One type is made in England and is pale grey to white in colour, and very hard, but in spite of this it is amongst the most popular foods with goats, and seems to give good results. The other kind is made abroad, by a very different process; it is, comparatively speaking, soft and bears a slight resemblance to tortoiseshell in appearance. Goats seem to prefer the English make, but it is certainly not so easily obtainable in small quantities as the foreign.

Linseed Cake. There are numerous different makes of linseed cake, but these vary only very slightly in analysis. Taken as a general rule it can hardly be considered a popular food with goats, although certain individuals will eat it greedily; they should, however, be persuaded to eat it if possible, as for producing bloom

and show condition it appears to have no equal. It is the custom with some goat-keepers to make what is known as a linseed mash, which is linseed cake, or linseed cake dust, scalded with boiling water, and fed to the goats either plain or with weatings added, and it is undoubtedly very beneficial, but it is necessary to remember that the mash should be fed to the goats directly it is cool and not left to get stale, otherwise it is liable to develop poisonous properties in the form of prussic acid.

Maize, Flaked. I think one is safe in saying this is the most popular food with goats, and is used as the basis of many rations. It is low in protein and so is suitable to blend with any of the rich foods, and is also very useful to mix with heavy meals owing to its light flaky nature. Several makers now offer it under different proprietary names, but so far as one can tell, the food appears to be identical.

Maize Gluten Feed. This is a yellowish meal, with a rather nice biscuity smell. It is often difficult to get goats to take to this food, but, once they have acquired the taste, they seem very fond of it. It is a heavy meal and should therefore be used in conjunction with some light, bulky food, and it is best given slightly damp, otherwise it is liable to remain at the bottom of the feeding pail. It is a correctly balanced food, so can be added to any ration without altering the total ratio.

Oats. For many years it has been the custom for goat-

keepers to give their goats a large percentage of oats in their diet, a practice for which I see no justification, as their analysis does not lead one to expect them to be particularly useful for milk production, and the wastage is very high, as the husk constitutes 30 per cent of the total grain. At the present time they certainly do not seem to be worth the price asked for them. It has been said that oats have a special virtue in stimulating animals' appetites, but nowadays this is disputed. When oats are used they should be fed either crushed or coarsely ground. They rank amongst the foods low in protein content and are useful for breaking up rich rations. Great care should be taken when buying oats, as they vary so greatly in quality.

Peas. Field peas may be used for goats, but their analysis is so similar to that of beans that one hardly seems justified in paying the considerably higher price usually asked for them. They certainly seem to have a very good effect on the development of kids, which cannot be explained by the analysis. When peas are used they should be given split or rolled.

Soya Bean Meal. The soya bean is a small yellow bean about the size of a pea, and is ground in varying grades of meal, of which the coarsest is most liked by goats. It is very rich in protein, and must be broken down with foods that are high in carbo-hydrates. Animals of all ages do well on this meal and it seems to be the most economical food to use to raise the protein content of rations. Besides being cheap in proportion to its pro-

tein content, it is easily obtainable in small quantities, and if bought in large quantities it has the advantage of keeping well.

Weatings. This food was formerly known in various parts of the country as middlings, sharps, thirds, and pollards, and so much confusion reigned as to the quality of these various grades that it was decided by the leading millers and corn merchants to put on the market a wheat by-product of standard quality under the name of weatings, to take the place of the others. This is now known as "fine millers' offals". It is very useful in the composition of mashes, and can also be mixed with soaked sugar beet pulp, or sprinkled over sliced roots in order to make them more palatable. In feeding value it is slightly lower than bran. Being so light and dusty it is not acceptable to goats in its dry state.

Wheat. Owing to the low price of wheat as compared with broad bran and weatings, one might feel tempted to use wheat in the ration in their place, but it would be necessary to have it crushed. It should not be ground, as, if used in that form, it becomes a sticky, pasty substance which is difficult for an animal to masticate. Its protein content is considerably lower than that of bran, being 1 to 7·2, against 1 to 4·2 in the case of bran. Some years ago when wheat was very cheap I used crushed wheat in the rations, correctly balanced, but I was very dissatisfied with it, as I considered it tended to produce fever in the feet.

Average Composition per lb. of Various Foods

	Dry Matter	Starch Equiv.	Digestible Prot. Equiv.	Ratio Prot. Equiv. to Starch Equiv.
Barley	·85	·71	·06	1 : 11·8
Beans	·86	·66	·20	1 : 3·3
Bran	·87	·42	·10	1 : 4·2
Coco-nut cake	·89	·79	·16	1 : 4·9
Cotton cake (dec.)	·90	·71	·34	1 : 2·1
Grains, dried	·90	·49	·13	1 : 3·9
Ground-nut cake (dec.)	·90	·73	·41	1 : 1·8
Linseed cake	·89	·74	·25	1 : 3·0
Maize, flaked	·88	·83	·09	1 : 9·1
Maize gluten feed	·90	·76	·19	1 : 3·9
Malt coombs	·86	·59	·14	1 : 2·7
Oats	·87	·60	·08	1 : 7·5
Peas	·86	·69	·18	1 : 3·8
Soya bean meal	·89	·64	·38	1 : 1·7
Weatings	·87	·69	·12	1 : 5·7
Wheat	·87	·72	·10	1 : 7·2

CHAPTER XI

THE MALE

WHETHER or not it is worth while to keep a male depends on the number of females that are kept and also whether it is possible to earn stud fees with him, either through entering him on the Stud Goat Scheme or getting neighbours to send to him privately. It is possible to earn nearly ten pounds per year with a male on the Stud Goat Scheme if he makes the maximum number of services, and this is a great help towards the expense of keeping him. But male goats are most undesirable animals, possessing loathsome habits and a vile smell, and I advise anyone to give the matter their most serious consideration before buying one. It is wise to try and look at the problem from all points of view, and one must admit that, unless one is more than usually fortunate, there may not be a suitable stud male for many miles, and this means a lot of trouble and expense in getting the female goat to him to be mated, and if she has to be sent away by rail she will be absent for several days, during which time her milk may be greatly missed.

The male is usually considered to be half the herd, but he is really better valued as three-quarters, for think of the tremendous influence for good or bad he will have on the herd. It is impossible to be too particular about

his selection, as the whole herd can be greatly improved or spoilt by your choice. Once again those Herd Books must be brought out and the question of pedigree studied, and, if this is done intelligently, much help should be obtained from the experience of others on the question of mixing certain blood lines, as it is a recognized fact that certain families "nick" better together than others, in spite of the breeding being as good in one family as in the other.

It is not very likely that it will be possible to buy what is known as a good proven sire, that is, a male that has already proved himself a sire of heavy milkers, so your selection should be made of one descended from as long a line of heavy milkers as possible, and if it can be ascertained what milk his sisters and half-sisters have given, it will also be a help in making a decision. But one as well bred as possible should be bought. Pedigree is the first consideration, but type and conformation are of importance, so these points, too, will be given some thought.

So far as breed goes, one must be guided by the standard for that breed, and in the case of the fairly recently formed breeds—British Alpines, British Toggenburgs, and British Saanens, the less blood there is of other breeds in the pedigree the more likely the male is to throw typical kids.

On looking over one's animals it may be found that the same fault occurs in several members. If this is so, the selected male must be as perfect as possible in this respect in order to correct the failing in the dams which the kids will have a tendency to inherit; in fact

the male should excel in the points where the females fail.

I am not an admirer of the masculine type of male. Several years ago this was the animal that won prizes—a fine, big, heavy animal, very handsome in his way and one to admire, but always to my mind too near to the "beef" type to make a good sire for milk, and I have always preferred males of the more refined type—in fact, definitely effeminate, especially about the head and neck, and in selecting a male for siring milkers this should be borne in mind. The nearer in general conformation the male is to the ideal milker the better. He should have a good spring of ribs—nice straight, strong back, and be wide behind. A male that is narrow behind with pinched hips tends to sire females with "necky" udders—a very unsightly fault. He must also have skin of fine texture and his coat must be soft and silky. Even if he carries a good deal of coat, which some males do, it must be fine if hopes are entertained of breeding heavy milkers from him.

As with the females, there are three different ages at which to make a purchase—a *kid*, a *buckling*, and an *adult*.

A good type male *kid* can be bought at birth and if possible it should be a section-mark or dagger male. There are, however, two occasions when it is quite good policy to buy a male kid that is not a dagger; one is when his dam is a first kidder and it is too early in the year for the owner to have had a chance to show her in any milking trials and she has therefore not had an opportunity to qualify as a star milker, and the other is when

a very promising first kidder dies before she can be exhibited. In either of these circumstances the male kid may well be worth buying, but his price should be lower than that of a dagger male.

It is always advisable to get the seller to give a guarantee that if the kid fails to become a stock-getter he or she will either replace it or refund the purchase price.

A *buckling* is a safe investment, as by then he will have proved himself a stock-getter. His good and bad points will be apparent, so it will be easier to decide on his suitability for the females with which he is to be mated. Size is a little misleading at this age, as some male kids are so excitable that they go off their food during the mating season and grow very little during its duration, with the result that they may be backward for their age as bucklings, but, provided they have not actually been kept short of food, or overworked, they will pick up and grow on during the summer months. One should, however, avoid buying a *very* undersized animal.

An *adult* male is the safest of all purchases so far as knowing exactly what one is buying goes, as it is usually possible to see his progeny. When forming an opinion on this, the merit of the dam of his kids must be considered, as some good males never have a fair opportunity of siring anything of exceptional merit or even high-class stock, owing to the very inferior females to which they are mated.

To be considered a good sire of milkers, a male's daughters' milk yield should exceed that of their mothers

given at the same age and under the same conditions. It is, however, often a very difficult thing to make a fair comparison owing to the difficulty of being sure that the management, etc., has been as good in one case as the other.

Males should be fed twice daily unless they are entirely stall-fed, when they will need an extra meal of some kind of live food—either roots or green stuff.

The same rations can be used as for the adult milkers, but with a little extra bran and oats added so that the food is not quite so rich.

A good programme is:

Morning—Concentrated food (as much as he will clear up eagerly, probably about $1\frac{1}{4}$ lb.).

Hay—A rack of good clover, sainfoin or lucerne.

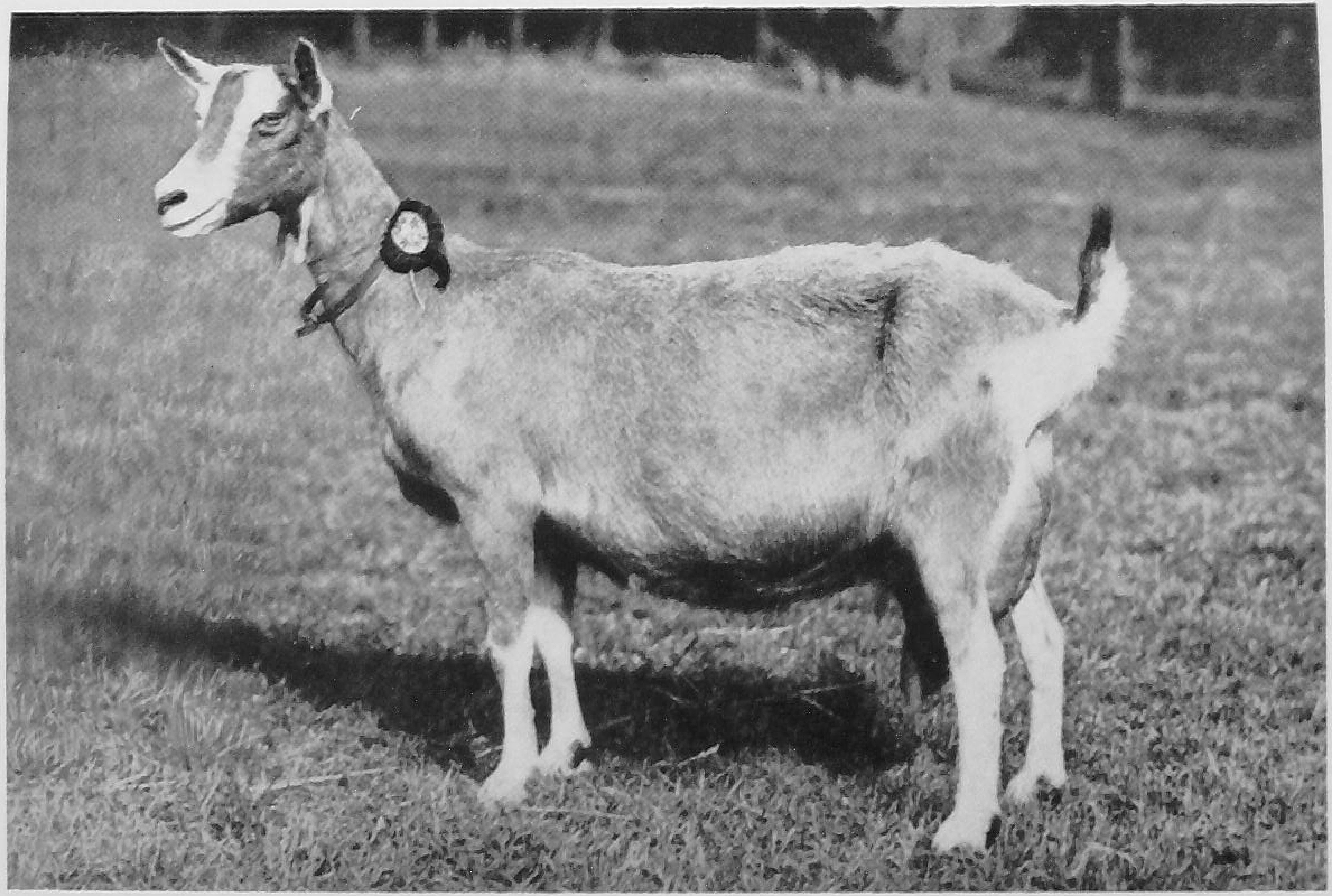
Warm water should be offered and a pail of clean water left always with him.

Midday—Green food or roots, preferably *not* mangolds or molassed sugar beet.

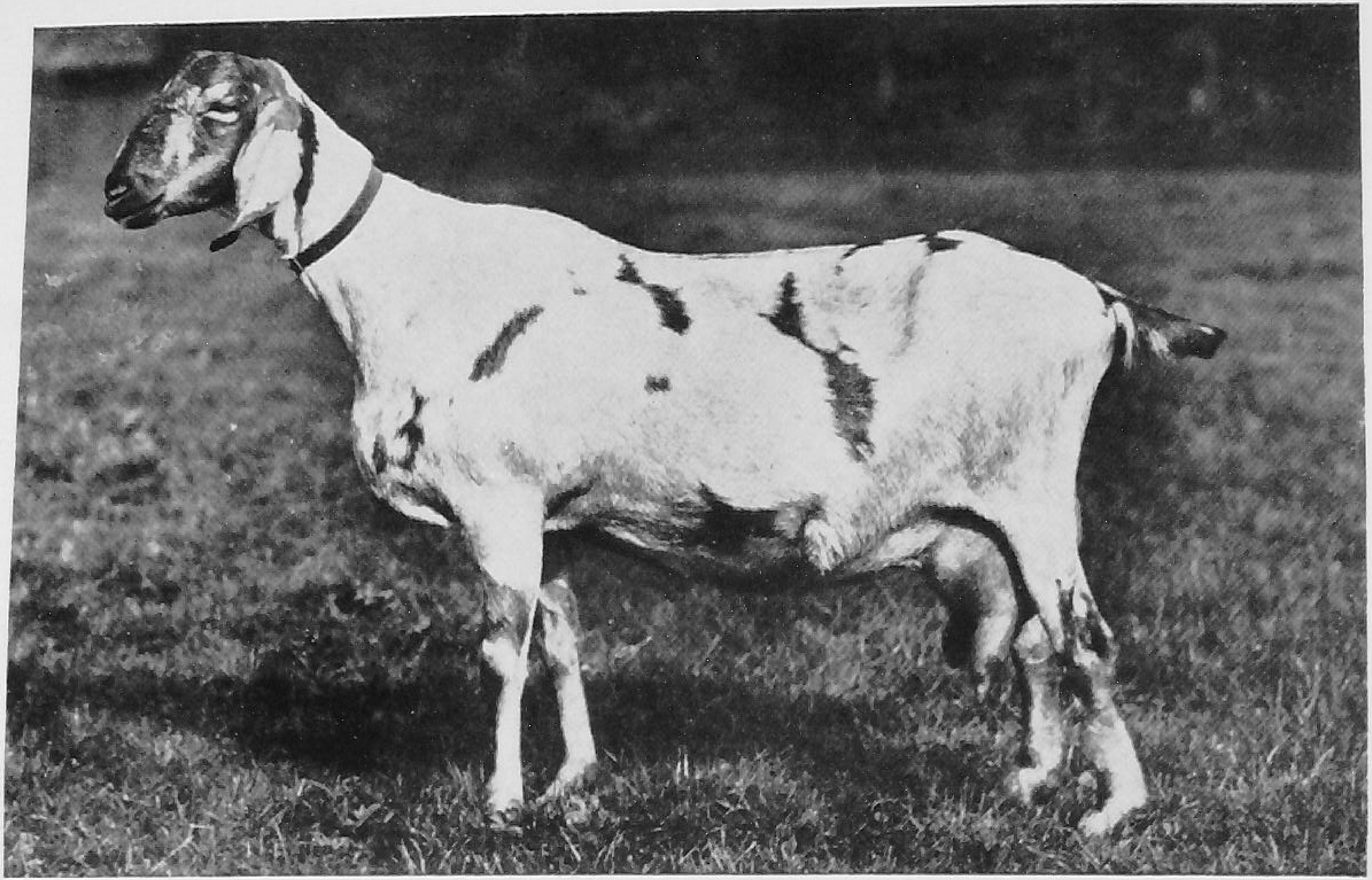
Evening—Concentrated food as before, and hay.

He should always have an iodized salt brick before him and it is advisable to sprinkle a pinch of minerals into his food every few days.

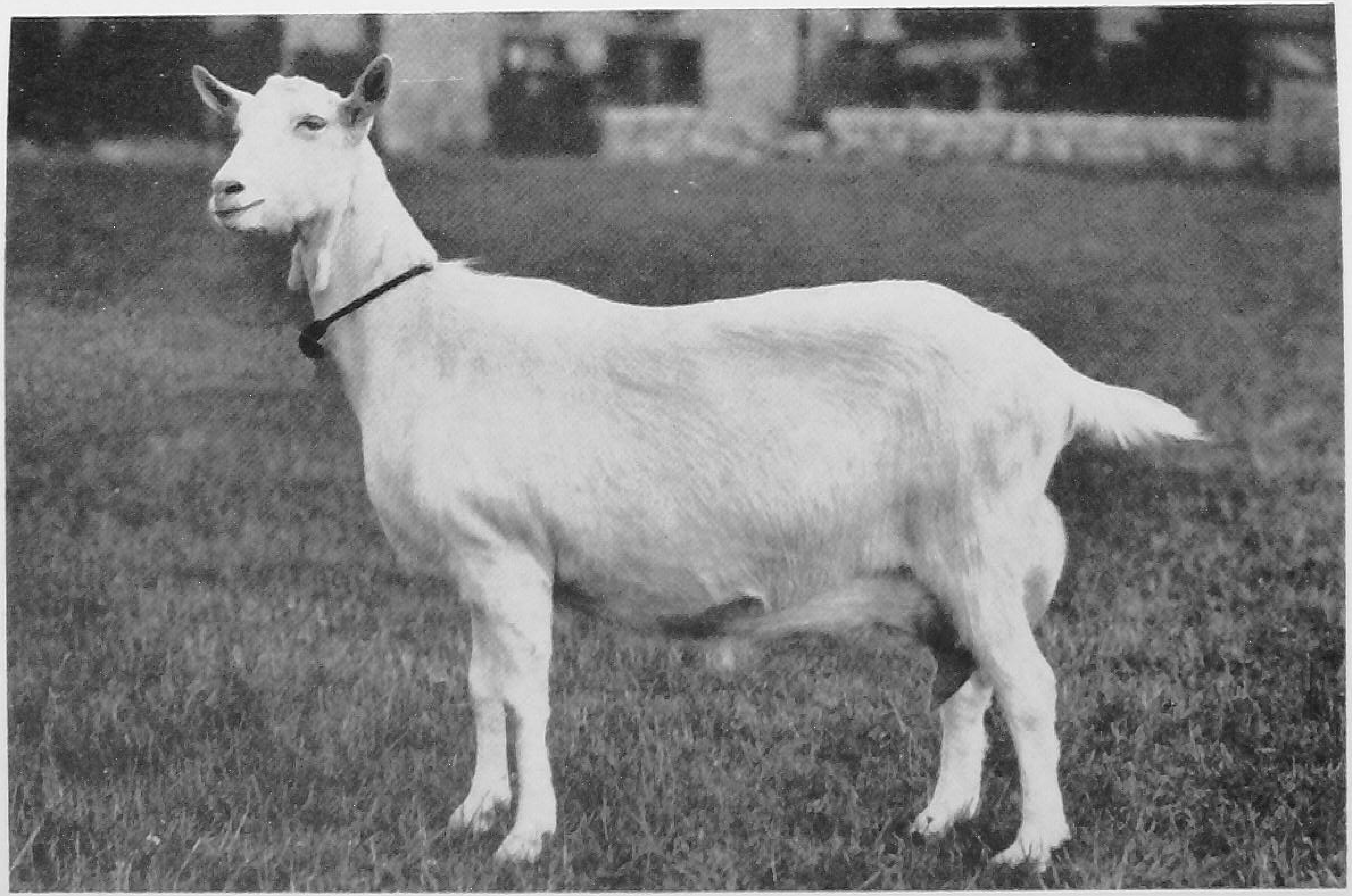
During the mating season the majority of males go off their feed and lose condition rapidly, and nothing seems to prevent this; no matter what food is provided, they will not eat satisfactorily, and for this reason one should endeavour to have the males in really good condition at the beginning of the mating season so as to enable them



A TOGGENBURG FEMALE
Sandhill Nerine * (Breed Champion)
Breeder : J. Kidman Owners : The Misses Window Harrison

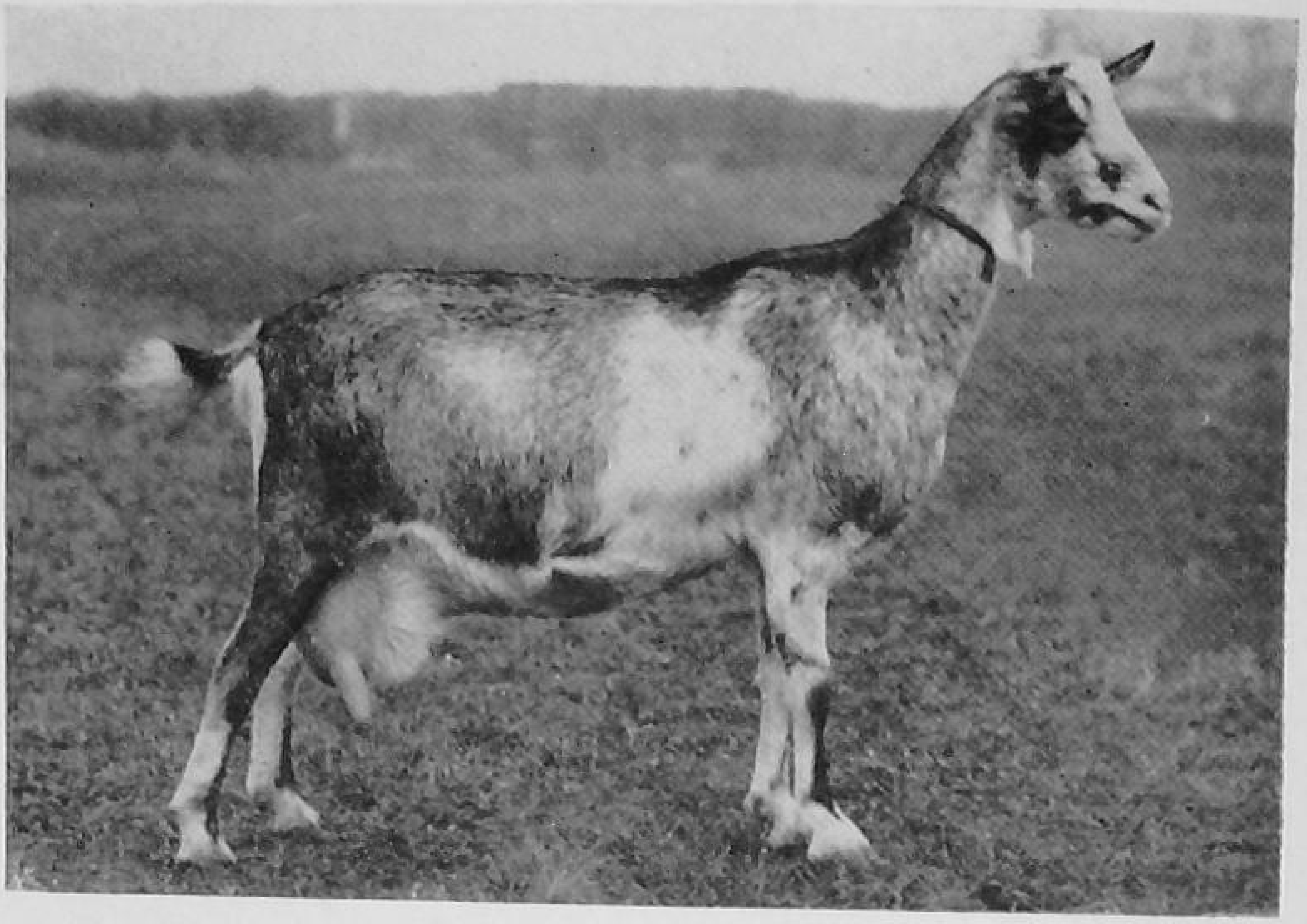


AN ANGLO-NUBIAN FEMALE
Theydon Butterfly Q*
Breeder and Owner : Miss Pelly

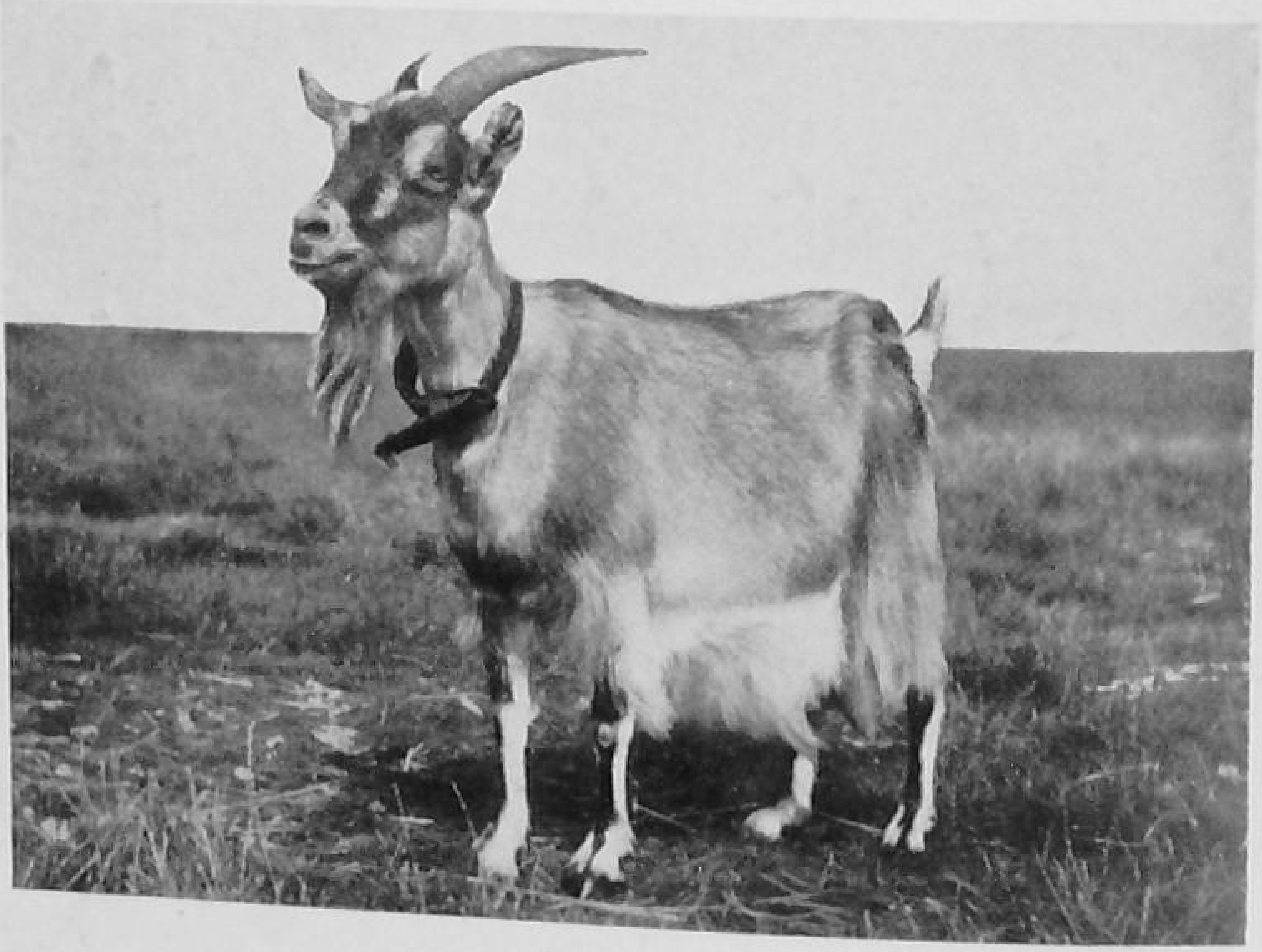


A SAANEN FEMALE
Broxbourne Blanche *1

Breeder : H. E. Hughes — Owner : Miss Booth



A BRITISH FEMALE
Homestall Dora Q*3
Breeder : The late Lord Dewar Owner : Mrs. Bagnall



AN ENGLISH FEMALE
Emerald
Breeder : F. Macpherson Owners : The Misses Window Harrison

to stand this self-imposed semi-starvation. It is amazing how quickly they pick up again as soon as they start feeding once more.

There is one particular item in regard to male goats to which I must draw attention, and that is the skin. After a male gets to five years old or thereabouts his skin has a tendency to become very hard and horny, and this condition soon becomes chronic unless it is taken in hand early. I have found the best remedy is to wash him with warm rainwater and soft soap, rubbing him thoroughly until he is a mass of white lather and his skin seems to be saturated. Then he is rinsed with clear warm water and dried, but before the pores of the skin have completely closed, all the parts where the skin is hard are massaged with 5 per cent carbolized oil. This treatment may be repeated every few days until his skin softens and the coat begins to grow nicely, but the probability is that it will need no more washing, but just massaging with oil once or twice more. The oil should be rubbed in so that the goat feels but slightly oily, not wet through.

Male goats, like all stud animals, are sometimes inclined to be treacherous and should never be taken liberties with; particularly is this the case if they change hands late in life or frequently. They should be treated firmly but gently, and it is quite useless to lose one's temper with them and knock them about if for some unknown reason they become rough. They should wear strong leather head collars and, if they try to butt, a firm hold should be taken of this, when they can really do very little harm. I have never had a male goat reared in my

establishment that showed the slightest temper, and from that I conclude their temperaments are largely dependent upon their up-bringing. A male kid should *never* be played with; they may seem amusing when they are small kids weighing about 20 lb. or so, but it ceases to be a joke when they weigh about 200 lb.!

CHAPTER XII

SHOWS AND SHOWING

MANY people with a natural aptitude for succeeding with animals will be agreeably surprised to find how rapidly goats respond to good management and feeding, and this will probably encourage them still further to improve their stock, until they become anxious to see how their animals compare with other people's, and should a County Show happen to come to a nearby town the opportunity to begin as an exhibitor will be seized.

Perhaps I should begin by saying something about exhibitors' deportment. The very first lesson to learn is to be able to take defeat cheerfully, or if not actually cheerfully, at least not to show by word or deed that one is disappointed, and, above all, do avoid that dreadful fault of accusing the judge of favouritism or bad judgment. Has it never occurred to you that the fault more often lies in the fact that you are wearing rose-coloured spectacles where your own animals are concerned, and that, having been so used to seeing some particular one stand out alone, at home, as a lovely creature, you are unable to grasp the fact that in comparison with other animals she is only second-rate or even worse? And it is when compared with other animals that the judge has to form his, or her, opinion.

Different judges have different ideals, and for this reason different animals win.

Take a beating cheerfully and a win modestly, and you will then be a welcome and popular member of the exhibiting world.

The decision to show being arrived at, the initial start must be planned out. Decide at what show you want to exhibit, and if possible select a nearby and not very important one, and write to the secretary of that show for a schedule.

Having duly received the schedule, look through the classes and definitions of them and see for what class your goat is eligible. If there is one nominated for her breed, or type, she must be entered in that; if not, she goes into the "any other variety" class. Is she a milker? And is she giving enough milk to be likely to qualify as a star milker? (Roughly speaking, she must be giving 10 to 11 lb. daily if she has kidded in the current year.) If she is doing so, she should be entered in the milking trials, as her value and that of her kids will be greatly enhanced if she becomes a star or "Q" star milker.

The advisability of entering a kid or two for the show should be considered if they are being hand-reared, as it is quite possible you may be short of milk at home and yet have a superfluity of it at the show.

When the entry form has been filled in, a final look through it should be taken to see that none of the necessary particulars have been omitted and that the writing is clear and easily legible.

The entries usually close a month or two before the show, so one will have that amount of time in which to

make preparations. Provided the goat is already being really well managed there is nothing extra that can be done towards getting her into show bloom, unless perhaps in the matter of coat. Should the show for which entry has been made be an early one, the goat's coat may be very poor, the old one being dead and staring and the new one not ready to come through, and in this case a daily drink of linseed tea may be of some assistance, aided by careful grooming, but care must be taken over the grooming, as it is better for the goat to have a rough winter coat than be bald in patches.

A day or two before the show the various things that will be needed should be collected together—collars, chains, rugs for the journey and the night, feeding pails, water pails, and pails for milking into, hay-nets, tarpaulins, hammer, nails, screw-driver, wooden spoon (if mashes are used), bottle and teat (if kids are being taken), string with which to tie up green food, disinfectant (in case of accidents), soapflakes (in case the goat gets dirty), a primus, needles, methylated spirit and paraffin (but do not fill the stove with paraffin before the start or the stove may flare up when lit). Food for goats, corn rations (the usual ones). Hay and green food. Both the latter may be provided by the show executive, but its quality and cleanliness are so doubtful that it is wise to take one's own, especially if one has a goat in the milking trials. Several sacks of leaves, etc., will be needed for the duration of the average show. Don't try experimental feeding at shows.

If one is spending the night and day on the show-ground, one will need all sorts of household utensils and

grocery provisions. Tastes vary so much that I cannot say definitely what should be taken, but I strongly recommend the inclusion of either Bovril or Oxo or some tinned soup, as a hot drink of this sort is very comforting before retiring if one is too tired to feel like eating anything solid. Alas, a common state of affairs at shows!

A folding chair and table should not be forgotten.

For sleeping accommodation I advise a made-up straw bed in a spare goat-pen (enter a goat and do not take it for the sake of having an empty pen if necessary), and with a well-filled pillow and at least three blankets one can be reasonably warm and comfortable.

When the judging morning arrives, the first thing to do is to get the primus going for hot water and tea, and while the kettle is boiling feed and water the goats. On no account must the goat be milked, however full her udder is, as, even if she is not in the milking trials, the judge will need to see her in the ring with a full udder.

Now have breakfast, clear it away and wash up, and begin preparing the goats for judging. They should be groomed with a rather soft brush and polished with a sharp rub over with a chamois leather, their special show collars (if you use them) should be put on, their rugs replaced and some tempting green food given them. Their inclination is not to feed because they want to be milked, but they should be persuaded to feed if possible, otherwise their appearance is greatly depreciated by being hollow in the flank.

The next thing to get ready is a clean pail for milking; this used to take place immediately after the adult goats had been judged, but since the last war a new "fashion"

has developed of milking the goats before the scheduled judging time. The judge arrives early—very early—inspects the udders and makes the necessary notes. The goats are then milked and the milk weighed for the milking trials, and the goats are re-judged at the advertised time.

Perhaps this is not the right place to say so, but I thoroughly disapprove of this innovation. It is, in my opinion, unfair to the public who come to watch the judging. A goat's udder is a most important part of its anatomy and no one can form an opinion of its normal shape when it contains two or three hours' milk. There is no time when an udder is more deceptive. Also from the point of view of yields, there seems to be no justification for it. Goats managed to give very high yields on the past system without all this present-day inconvenience to so many people.

A pail will be needed for each milker, as the milk remains in the pail until all the milk has been officially weighed and booked in, and after that both the milk and the pail are usually returned. It is advisable to have an extra pail to strip the goat into, if she is fidgety, so as not to run the risk of upsetting any, and some goats are very restless at shows.

Before the judging begins the class number should be got out and verified to make sure it applies to the animal being shown in that particular class; one ought then to be ready to appear in the ring directly one is wanted.

Immediately the milking is over, the goatling and kid classes will be judged. The kids should have a bottle of milk before going into the ring and it is best to give this

directly the milk is returned, while it is still fairly warm, to save the time and trouble of reheating it. Before taking either goatlings or kids into the ring one should try and snatch a moment in which to give one's milker some green food to keep her contented until one's return.

As regards handling the exhibit, I can only advise that endeavour be made to pick out its faults at home, and then, with the aid of someone standing by to criticize and advise, the best way of showing it should be studied so as to hide as many defects as possible. Some goats show to best advantage slightly stretching, to get good length; in others this position makes them appear weak in back; some are better bunched up (narrow goats usually look best like this); some look their best with the heads held high, whilst this attitude will spoil another; so it is the owner's business to learn to hide the faults and show up the good points of the animal. This is not "swindling the judge", as I once heard it described, it is merely making the best of an exhibit; which the exhibitor is there to do, and it is the judge's job not to be hoodwinked!

Keep an eye on the judge; he may suddenly return to your animal when you are off your guard or turn round and catch a glimpse of it which you did not mean him to see. I have learnt a lot like this whilst judging.

CHAPTER XIII

AILMENTS

MANY of the ailments and illnesses from which goats suffer require skilled veterinary attention, but there are also quite a number of troubles which the average goat-keeper is capable of treating, and it is the latter that I am dealing with in this chapter.

Abortion. All female goats are liable to this accident, which is the expulsion of the fœtus before the completed time of pregnancy.

There are various causes for this, such as falls, sudden shock, fighting, and other forms of violent exertion. It can also be caused by digestive disturbances resulting from feeding frost-bitten roots and the giving of long draughts of icy-cold water. There is also another form of abortion, called contagious abortion, caused by a germ. Unfortunately this is very common amongst cattle, but goats appear to be immune from it, or at any rate, I am presuming they are, as I have never heard of an authentic outbreak of it amongst goats and I know one herd which for a long time mixed with dairy cattle badly infected with contagious abortion, yet none of the goats aborted.

The consequences of abortion are very varied, causing severe illness in some cases, whereas in others the animal's

health seems to suffer very little, but in either case the animal should be isolated, and the dead kid and all discharges burnt.

It is very probable that the afterbirth will be retained for several days, and the goat should be syringed out twice daily with disinfectant (as recommended for retention after kidding). In order to ascertain that septic metritis is not developing, the goat's temperature should be taken and if found to be above normal (102° to 103°) she should be given some cooling medicine to get the temperature down, and should be warmly rugged.

For several weeks following abortion there will be a fairly copious discharge and on no account must the goat be allowed to associate with the others while this continues. If she comes in season she should not be mated until the discharge has definitely cleared up.

Barrenness, or Sterility. For varying reasons some goats, both male and female, are incapable of producing progeny, and some of these are amenable to treatment when they are not cases of malformation. Barrenness in the female is best treated by getting her into good healthy condition. If she is too thin by feeding her up, and if she is too fat by reducing her concentrated feeds and putting her on to a diet of green food and hay only.

When she comes in season she should be syringed out with one pint of solution made of 20 oz. of water to 1 oz. of bicarbonate of soda. The bicarbonate should be dissolved in cold water and warm water added to it to bring it up to a temperature of 103°. This should be done

twenty minutes before mating. This applies to cases in which the goat is mated but will not hold in kid.

When the difficulty is one in which the goat does not come in season, then a sexual stimulant must be administered and one of the advertised makes can be used or a prescription made up by a veterinary surgeon.

Female goats seem to be peculiarly liable to false conception, which is the filling up of the uterus with a vast quantity of water closely resembling *liquor amnii.* It is impossible, so far as I know, to detect the difference between this condition and that of true pregnancy, but one's suspicions may be aroused by the fact that a goat suffering from a false conception usually becomes exceptionally enlarged in the body and yet fails to dry off in milk. This condition generally continues longer than a normal pregnancy and may even persist for six months.

Once the water has been expelled the goat appears perfectly normal both in body and health and she is likely to come in season five days later, but I do not recommend mating her then unless all sign of discharge has gone. When she comes in season again three weeks later she should be mated, as it is highly probable she will then hold in kid.

It is strange that goats which have never been mated may produce this phenomenon.

Sterility in the male is a subject for a veterinary surgeon and he should be asked to come and test the animal's fertility, after which he will be able to say whether there is any hope or not of successful treatment.

Bladder, Inflammation of. This condition does not often arise with goats, but when it does it is usually the result of a difficult kidding.

In severe cases a veterinary surgeon should be called in, but in mild ones much help may be given by administering small doses of linseed oil—about one tablespoonful at a time—and giving the patient barley water and linseed tea to drink. The symptoms of this disease are passing water very frequently in small quantities with a certain amount of straining.

In cases where the goat soils itself, small doses of bicarbonate of soda should be given to prevent the water scalding the skin and removing the hair.

Blood in Milk. Goats will sometimes yield milk which is blood-stained in varying degrees. The milk analyses exactly like other milk, so can be used for poultry and animals, but it is so revolting in appearance that all goat-breeders will wish to cure the animal as quickly as possible.

Milk very gently and give the goat a dose of Epsom salts (one tablespoonful of salts in a quarter of a pint of water), and cut down the albuminoid ratio a little by mixing a smaller proportion of the rich ingredients in the total bulk, as it seems possible that over-stimulation of the mammary glands may be partly the cause of the trouble. A liberal allowance of green food should be given and a bran mash every alternate day.

When the milk has been normal for three or four days the ration may be enriched again very gradually.

The health of the goat does not appear to suffer in any way from this trouble.

Chills. The first noticeable symptom of a chill is the hair of an animal standing on end, and the goat should be warmly rugged at once, stabled out of all cold winds and draughts, and given a drink of half a pint of warm beer. If, in spite of this, the symptoms continue and, in addition, the nose begins to run and the appetite is lost, a dose of one of the well-known medicines for chills should be given. Should the breathing become short and jerky and the temperature rise above normal the case is too serious a one for home treatment and the veterinary surgeon should be sent for.

Colic. Colic exhibits many different symptoms, but they are all forms of indigestion.

The colic seen in kids is of a very violent type, the kid screaming and throwing itself about as though in a fit, and no time must be lost in applying a remedy. The first thing is to administer a tablespoonful of linseed oil or medicinal paraffin. This should be followed by a warm soap and water enema. A very convenient instrument to use for this is an all-rubber ear syringe. Should the kid be in much pain it must be given some medicine, such as Chlorodyne, to alleviate it, and its stomach rubbed, as kids are unable to bear much violent suffering and are liable to collapse and die in a very short time.

In the case of the adult there are two distinct forms of colic, one in which the animal shows definite signs of pain by constantly stretching its back and getting up and down,

and the other is a case of "hoven" or "blown", when the body becomes greatly distended by gas.

In the first case I should advise a soap and water injection and a dose of Chlorodyne, and in the second a dose of 4 oz. of linseed oil with about a teaspoonful of turpentine mixed into it, and the goat's stomach and sides should be firmly but gently massaged. As a rule the wind disperses so rapidly as to be quite uncanny. But if this has not gone down within an hour, another 4 oz. of linseed oil should be given as, if continued, the condition may easily endanger the animal's life. One presumes it suffers great discomfort though it shows no signs of actual pain.

Constipation. Constipation may arise from various causes, the commonest of which are an excess of hard food, insufficient water, or lack of exercise. To remedy it, a large goat should be given a dose of 4 oz. of castor oil with 4 oz. of linseed oil. Should the goat be habitually inclined to suffer from constipation she should be given occasional bran mashes to eat or linseed tea to drink.

Cow Pox. This is an eruption which develops first of all as a simple pimple to look at; later on it fills up with a milky-looking fluid which eventually turns to pus. I doubt whether the eruptions sometimes seen on goats a few weeks after kidding are really cow pox at all, but for want of a better name I am mentioning this troublesome condition as cow pox.

With goats it must be cured quickly, otherwise they are

apt to start gnawing the udder and in spite of the pain incurred to themselves they will bite large fleshy wounds, from what one presumes to be a terrible irritation.

The first thing to do is thoroughly to disinfect the whole udder and teats with peroxide of hydrogen, in the proportion of one part peroxide to one of sterilized water, and when dry to sprinkle boracic powder on it.

Great care must be taken not to break the spots whilst milking, but if one does so, the disinfection of the udder must be undertaken again.

Unless the infection is very severe it will not be necessary to wash the entire udder daily, but the actual spots should be swabbed with peroxide and water, and boracic powder applied twice daily.

This eruption is very infectious, so any infected animal should always be milked last.

Diarrhœa. This malady is more generally known as scouring amongst livestock breeders, and its causes, which are many and varied, result in great loss of condition in the affected animal. It may arise from chill, too much green food, an excess of concentrates, or from worms.

It stands to reason that the cause must be searched for and removed, when the scouring will probably stop, but if not, medicine must be given.

In order to get rid of the irritating matter in the intestines a dose consisting of 4 oz. of linseed oil and 2 oz. of castor oil should be given, and about three hours later this should be followed with a dose of one tablespoonful of prepared chalk (this is for adults). Should this not

prove sufficiently astringent, the following prescription should be made up and given.

Youatt's Cordial

2 oz. prepared chalk.
1 oz. catechu.
½ oz. ginger.
1 drachm opium.
1 pint peppermint water.
Dose: One tablespoonful.

Scouring in kids is generally the direct result of bottle-rearing. Either the milk is given too hot, too cold, taken too quickly, or more is given at a time than the kid can digest, or it may even be that the bottle and teat are not scrupulously clean. Any of these faults can readily be put right, but the kid once having started to scour may be difficult to cure.

Give the white of an egg in a tablespoonful of water instead of one of the milk feeds and reduce the amount of milk at each meal for a day or two. If this is insufficient give a heaped teaspoonful of prepared chalk.

In some persistent cases it is necessary to give a dose of castor oil before the digestive organs recover their tone.

Eye Blights. I am not sure whether or not this is a correct term or merely a nickname given by farmers, but as I know no other it must suffice.

It appears to be a kind of inflammation of the entire eye and it is either contagious or else the animals get it from the same cause. Only one eye is usually affected.

The inside lining of the eyelid and white of the eye become very red and the pupil is covered with a bluey white film in the early stages and, with or without treatment, this gets gradually worse until the pupil appears to protrude slightly and the entire eye is like a red ball. It is obviously most acutely painful and the animal stands huddled up with its head hanging sideways in the darkest corner it can find, and ceases to eat, drink or chew its cud and drops in condition rapidly.

Treatment must be carried out very gently and I recommend bathing twice daily with 10 per cent boracic acid lotion and applying Golden Eye ointment. The best way to do this is to raise the upper eyelid slightly and put the ointment on the edge of this so that when the goat closes her eye the ointment spreads all over the pupil. On no account should any attempt be made to put the ointment directly on to the bulging pupil or, in struggling with the animal, it may be blinded.

Keep in a darkened shed.

Fever in the Feet. This is another very painful affliction and it may be caused by too rich a ration, too little green food, or, more commonly still, as a complication to septic metritis.

The feet become hot, tender, and extremely hard, and the goat seems afraid to put them to the ground, and if forced to go out of doors will "walk" on its knees in preference to using its feet. The feet grow abnormally quickly and soon become very long and deformed unless trimmed frequently, and this is difficult to do owing to their hardness.

The best local treatment I know of is putting the feet in bran and linseed meal poultices, or bran poultices with linseed oil mixed in. This is undoubtedly soothing and helpful during the most acute stage.

The general health of the animal must also be looked to and a cooling diet with plenty of green food is necessary, also a very small dose of linseed oil given daily will be very beneficial. A dessertspoonful will be plenty, as one does not wish it to work as an aperient.

With perseverance this condition of the feet is quite curable, but it must be tackled early in its existence, otherwise it soon becomes chronic.

Garget. I use the name garget here because it is probably the word most commonly used, but the veterinary surgeon will probably call it mastitis.

It is inflammation of the udder and varies enormously in both its symptoms and severity. No doubt many apparently sound goats have slight defects in their udders which only need a little aggravation, such as chills, etc., to bring the germ into active operation.

In these days such wonderful cures are produced with injections of penicillin and the administration of the various sulphanilamide drugs that I advise a goat-owner to send for a veterinary surgeon at once rather than try amateur treatment himself.

To the observant, the very first intimation that something is wrong with the udder is the narrowness of the pupil of the eye, and the eye itself is a shade or two paler. It is known to us as "slitty eyed" and this so aptly describes it that I use the expression here. The next

point to strike one is that the goat seems slightly stiff or even lame on the hind leg nearest to the inflamed side of the udder.

The chance of successful treatment largely depends on taking the case in hand quickly.

Taste the milk (I know it sounds horrible, but one cannot be too squeamish with animals)—just a few drops in a teaspoon and eject it afterwards. If the milk tastes salt it is usually a case of udder trouble. All fluids from the goat's udder should be milked into a jar already containing disinfectant and must be poured away down a drain or buried.

This disease is easily carried by flies, the human hands, etc., so that every possible precaution must be used to prevent its spreading; the person in charge of the invalid should wear an overall when attending to it and not go near the other milkers in it.

Supposing, in spite of early treatment, the case becomes one in which the milk changes from the yellow watery-looking fluid to an evil-smelling, thickish fluid, or one of a peculiar mauvy pink colour, it is unlikely that the glands on that side will be saved in their entirety and efforts should therefore be concentrated on trying to save the animal's life.

Should the germ infection be so strong that the inflammatory action cannot be stopped, that side of the udder will die; it becomes discoloured, is cold to the touch, and the milk resembles evil-smelling blood. Very shortly there is a kind of dent, a line of demarcation in the udder, and that part of the udder breaks away from the rest and falls off.

The smell is appalling.

Once it has sloughed off—and it does so fairly quickly—the enormous open wound heals in a matter of a week or so. But the poor goat is a complete wreck.

It is a long illness from start to finish and so dreadful is the suffering of the miserable animal that unless one has any very special reasons for retaining her, by far the kinder course to take, in my opinion, is to have her humanely destroyed as soon as the case is known to be one of a very severe type.

Looked at from the business point of view also, the animal is worth little with only half an udder, and all the time she is ill there is a grave risk of the infection spreading to the other animals.

Hair Cysts. These are peculiar lumps, usually filled with water, situated on the neck and most frequently at the root of one of the tassels. They are very unsightly and sometimes attain the size of a pigeon's egg. They do not appear to cause any disturbance to a goat's health.

The cyst can be removed by a veterinary surgeon, who cuts it open and peels away the inside skin. It is absolutely necessary to keep the wound open afterwards and the inside of it must be dressed daily for some time; otherwise, if allowed to heal quickly, the loose skin refills. If simply lanced and the water squeezed out it rapidly fills again.

The application of the dressing being troublesome to the owner and painful to the goat, it seems very doubtful whether the operation is worth while.

Lice. These hardly constitute an illness, but fairly frequently accompany one, and any animal that is in poor health and condition, during the winter months especially, should be carefully looked over for parasites. At this time of year dusting with a good insect powder will be sufficient if done every five days or so, but in warm weather it is better to wash the goat with a strong solution of quassia chips. The goat should first be washed with a good dog shampoo and then thoroughly rinsed with the quassia chips solution (to make which, pour one gallon of boiling water over 4 oz. of quassia chips and allow to stand for an hour before straining).

It is unusual for healthy goats to be troubled with lice, but to make sure of keeping them free from a visitation, a light dusting with flowers of sulphur about once a fortnight, shaken on from a pepper-pot while the hair is gently stroked the wrong way, is usually a safeguard.

Milk Fever. This ailment is mentioned here so that goat-owners may recognize the symptoms and so send for the veterinary surgeon immediately. It is not an illness that the average owner is capable of dealing with, although no doubt there are some who could do so. The symptoms vary greatly, but in the main it begins with an extraordinary lassitude, the goat refusing to feed and lying down the whole time. If the trouble commences out of doors there is often great difficulty in getting the animal home, as it lies down every few yards and has to be roused and forced to walk.

It rapidly gets worse and lapses into total unconsciousness. As a rule the animal appears to suffer no pain,

but when nearly unconscious it may call out now and again.

Before it becomes unconscious a dose of linseed oil should be given, but on no account should this be administered once unconsciousness has set in, or it may be poured straight into the lungs. The goat should be banked up with trusses of straw so that she cannot get down flat on her side, or else someone should remain with her until the veterinary surgeon comes.

On his arrival, he will inject calcium with a hypodermic syringe and his instructions should be carefully carried out now that the case is in his charge.

There seems to be no doubt that exhaustion plays a large part in bringing on milk fever in goats.

With cows milk fever usually develops within a fortnight or so after calving, but this is not so with goats, for they are generally attacked some months after kidding and this fact can, with advantage, be mentioned to the veterinary surgeon, as, in the first case I had, the veterinary surgeon only treated the goat for milk fever when I definitely asked him to, as he himself did not think it could be a true case owing to the length of time that had elapsed since kidding.

The recovery after treatment is so rapid as to seem almost uncanny, and I have seen an unconscious goat up and chewing her cud again two hours after treatment.

Goats that have once been attacked with milk fever undoubtedly have a predisposition to develop it again.

Poisoning. This is too wide a subject for me to touch on except very lightly, there being so many different

forms of vegetable poisoning to which goats are liable owing to their habit of eating practically any green stuff, and for this reason it is well in most cases to call in a veterinary surgeon who will know what antidote to prescribe. I therefore only mention a few of the commonest poisons.

Acorns. This is not easy to distinguish from any ordinary digestive trouble with severe and persistent constipation. For treatment, 6 oz. of linseed oil should be given and a soap and water enema, and laxative foods such as bran mashes, and green food should be provided.

Bryony. This produces most violent pain with copious diarrhœa and death speedily occurs unless relief from the pain is quickly afforded. Thirty-five grains of aspirin, dissolved in a teacupful of warm milk, should be given.

Dog's Mercury. In small quantities this herb is certainly not poisonous, but, owing to its being the earliest of the spring vegetation, goats will sometimes eat too much. The same treatment can be given as for acorn poisoning.

Laburnum. This is a narcotic poison and a coma quickly sets in, to counteract which black coffee and stimulants should be given.

Rhododendron. With this poisoning there is intense pain and vomiting. One large teaspoonful of bicarbonate of soda should be given in a tablespoonful of melted lard, followed by very strong tea and alcoholic stimulants.

Yew. This is a narcotic poison and the animal soon becomes unconscious. Linseed oil should be given and the enema used in order to get rid of the poison as quickly as possible and stimulants, such as brandy or whisky,

given or, if preferred, a dessertspoonful of sal volatile, but this latter must be very much diluted with water as it is irritating to the throat if given too strong.

Retention of Urine. This is a most distressing complaint fairly frequently seen in male goats, more especially when they are getting on in years, although they may be attacked at any age. It also occurs in female goats, but is not common with them.

No doubt it is caused by gravel forming from the waste products of the body not being disposed of normally, and is probably due to too high feeding and insufficient exercise in the case of well-cared-for males.

Treatment is most unsatisfactory as it rarely affords permanent relief, and operative measures undertaken by a veterinary surgeon are usually unsuccessful, for once the animal becomes so bad that an operation is necessary the inflammation has already done so much damage that sterility is the most probable outcome of it.

Should the case be of a very mild nature some hope of success may be entertained. Hot bran poultices should be applied along the organ which can be felt running along the stomach of a male goat, and the poultice should be pressed to the body with a very thick piece of flannel wrapped right round to keep the warmth in. Gentle massage with carbolic oil is sometimes helpful also.

For food, the goat should have mashes, apples and green food, but no roots; in fact, roots and sugary foods are always best withheld from male goats.

A dose of 6 oz. of linseed oil should be given, and linseed tea and barley water provided to drink.

Rainwater should always be given to male goats where the main water is hard.

Ringworm. Ringworm is caused by a parasite and is very infectious. It is readily recognized as a raised spot covered with a scurfy excrescence, at least the size of a shilling, and should be treated at once by thoroughly rubbing one or other of the following prescriptions into it. The incrustations will fall off, leaving a bald patch, but the hair rapidly grows.

Treatment should be carried out daily and it is well to continue the applications to the bald places two or three times after the trouble appears to have cleared up. It is not difficult to cure or to prevent spreading if it is taken in hand quickly.

Treatment should not be withheld because it is thought it cannot be ringworm as the goats have not been in contact with infected animals, as it sometimes makes its appearance without one having the slightest idea how it could possibly have arisen.

Prescriptions: 8 parts of oil,
1 part creosote.

Or 6 parts vaseline,
2 parts sulphur,
½ part creosote.

Sore Teats. These can be very troublesome, and however trifling the soreness appears to be, a remedy should be applied, otherwise a persistent sore may develop, or the goat may become a fidgety milker due to the pain

that has been caused her. Too much care cannot be taken, especially with first kidders, to keep the teats soft and undamaged.

For scratches or small tears it is best just to paint them lightly with tincture of iodine and follow this up with a coating of "Newskin" or collodion, which coats it over with a kind of varnish and prevents dirt getting into the wound.

Simple sore teats that are hard, cracking, or chapped are best treated by being massaged with one of the excellent udder salves that are on the market, but if one does not care to use these, carbolized petroleum jelly is very good, but it must be applied after milking, whereas the other preparations can be used to soften the teats before milking as they have no smell and do not taint the milk.

I do not advise using lanolin for udder or teat massage as it tends to produce spots on the udder; at least such was my experience.

Worms. How serious this infestation to goats may be I am not prepared to say, but I personally think a lot of illnesses put down to these parasites are not really due to them at all. Granted that many goats do die of malnutrition, and when post-mortems are carried out are proved to be full of worms, but I am inclined to believe the malnutrition came first and the worms seized the opportunity to increase while the goat's resistance was at its lowest, thereby finishing off the work of destruction already begun.

Unless it is certain that worms are present in the goat I would much prefer to give a course of tonic in order

to try and condition it, and if this was ineffective then to dose for worms.

If there is persistent scouring, or an intermittent one that keeps on recurring without any change in diet, then worms should be presumed to be present and a worm count taken, and if worms are present steps must be taken to eradicate them. There are different ways of doing this. One is by giving small doses of copper sulphate every morning for a week; then a week's course of Parrish's food; this treatment should be repeated twice more, but this is prolonged and troublesome as it occupies six weeks. Another way of using copper sulphate is to give a dose of 3 oz. of one per cent copper sulphate solution, wait for ten days and then dose again. This is generally satisfactory. The solution is made by dissolving the sulphate of copper in the proportion of 1 oz. to 100 oz. of water, which preferably should be rainwater.

Phenothiazine is a fairly new drug and at one time was looked upon with great favour, but it is doubtful whether it has come up to expectations.

After either of these worm treatments I recommend a course of tonic.

Whites. This is a very objectionable discharge which frequently follows an assisted kidding, but may develop after a normal one or sometimes not until several weeks have elapsed since kidding.

It has a most lowering effect on the goat, which rapidly drops in milk, and her condition becomes deplorable. In some cases the coat becomes dead and staring and in others she sheds her old coat, but fails to produce another,

so that she is practically bald for some considerable time.

For treatment she should be syringed out with a solution of either Dettol or Condy's Fluid as recommended for retained afterbirth, and it is essential that a good tonic should be given. Frequently there is a loss of appetite, but everything possible should be done to tempt her to feed well—so debilitating is this illness.

CHAPTER XIV

NURSING

In treatment of illnesses there is no doubt that nursing is of primary importance and many a veterinary surgeon gets the blame or credit for the recovery or otherwise of a patient that is really due to the nurse.

It is essential in nursing to be capable of feeling sympathy for the unfortunate animal, and one must be quiet and gentle and possess much patience, for sick animals can be very aggravating.

Rest and quietness must be provided for, and it is not wise to disturb a sick animal oftener than every two hours or so. Nothing is less conducive to a speedy recovery than running in and out almost incessantly, and consequently destroying any chance of sleep for the animal. Anyone who has had an illness will readily appreciate the animal's desire to be left alone and in peace.

Goats like companionship so, unless gravely ill, they are best kept within sound of other goats, but if very seriously ill they appear to prefer being by themselves in absolute quiet and in a dim light. Plenty of fresh air should be arranged for and, in order to avoid the animal feeling cold, it should be rugged.

The normal temperature of a goat is 102° to 103°.

When the temperature rises a point or two above

normal, the goat will probably suffer from constipation and this, if unrelieved, tends to send the temperature even higher, so laxative foods such as bran mashes, linseed tea and green food should be given and a dose of medicine such as linseed oil, cattle fever drinks, or aspirin may be used to help to get the temperature down.

In cases where the temperature falls to sub-normal (i.e., below from 102° to 103°) the animal must have stimulants and cattle medicines, or sal volatile may be given, followed by strong black coffee every three hours.

My experience leads me to say that a sudden sub-normal temperature rapidly following a high one denotes such a degree of collapse that death is almost certain to supervene. But a sub-normal temperature caused by poisoning can often be remedied by timely stimulants.

How to Drench. The correct way to give a drench is to push the goat's hind-quarters up against something firm so that it cannot run back, and take up a position by its shoulder. An arm should be placed over its neck and a thumb into its mouth just behind its front teeth and its head pressed against the operator. With the other hand the bottle should be put into its mouth, but, before pouring, it is necessary to make certain that the goat's neck is straight and the roof of the mouth should be touched with the bottle-neck to warn it to close its wind-pipe; its head should then be slightly raised so that the fluid runs down (the goat's head should not be held so high that its neck is perpendicular) and the mixture poured in very slowly. This is important, as if poured too fast the fluid may run straight into the lungs and cause

pneumonia to develop as a complication to the illness already in existence.

When to feed Slops? This is a question to which I have not yet been able to find a satisfactory answer, and I am unable to give any advice other than that it is obvious one cannot let the animal die of starvation, so that if it ceases to feed entirely for about forty-eight hours some slops must be given, but only in such quantities as are absolutely essential, as large amounts of liquid soon cause digestive complications. The amount of weakness and prostration may make it necessary to give slops before the forty-eight hours are reached, and the owner must treat each case on its merits as it arises.

It is far better to try and tempt a goat to feed by offering a few biscuits, a piece of bread, a handful of leaves, apples, or anything else one thinks she may fancy rather than begin pouring eggs and milk, beef extracts, or any of those things down its throat, as once this is done the incentive to feed gets less and the difficulty of getting the animal to take anything at all of its own free will is greatly increased. Only very small quantities should be offered at a time, and if not eaten should be taken away as it only makes the appetite worse for food to be left lying before them.

Goats that will drink milk may be allowed to have about three-quarters of a pint three times daily.

Some goats when ill will suck slops from a bottle with a calf teat and it is always worth while to try this, which is much to be preferred to struggling with an animal by forcible feeding.

Dressing Wounds. Wounds should not be dabbed with cotton-wool dipped backwards and forwards into disinfectant, as is so often done. A rubber ear-syringe should be used and the solution squirted on to the wound at close range so that it does not sting; to dry it a small piece of cotton-wool should be taken and the wound touched with it once only and then thrown away; a fresh piece should be used for each application.

A wound should never be touched twice with the same piece of dressing as it may reinfect it.

All soiled dressings should be placed in a jar of disinfectant while the treatment is actually carried out, and burnt immediately it is over; on no account should they be laid down just anywhere. It should be remembered that the germs are waiting to re-establish themselves.

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